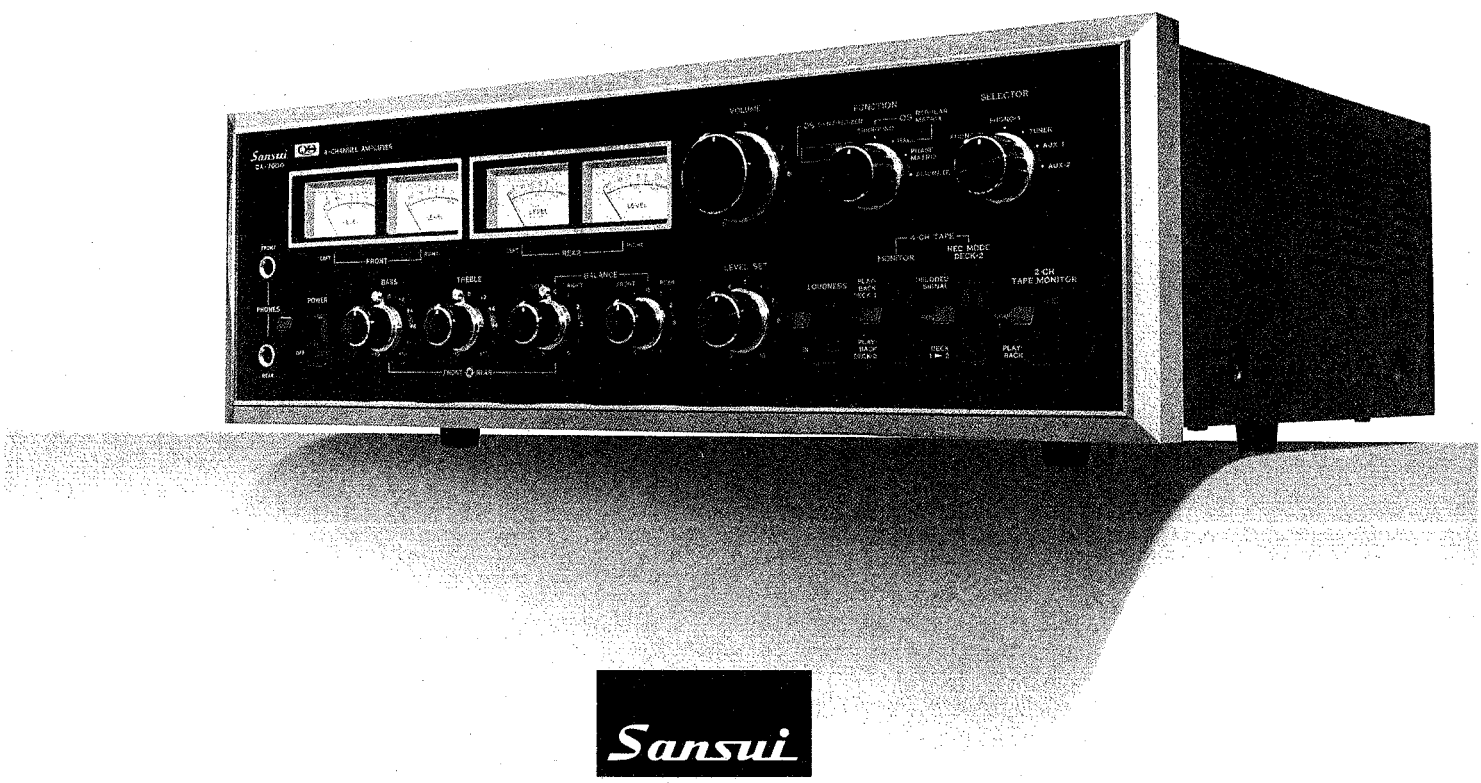
QS
REGULAR MATRIX

SERVICE MANUAL

4-CHANNEL AMPLIFIER

SANSUI QA-7000



Sansui

SANSUI ELECTRIC CO., LTD.

This service manual is designed for service engineers to repair, adjust, maintain and order the replacement parts of the QA-7000 corrctly.
When ordering the parts, use the stock number and parts name specifically referring to the Parts Locations & Parts List.
For general usage and maintenance of the unit, please refer to the Operating Instructions attached with the unit.

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1. SPECIFICATIONS

POWER OUTPUT (at rated distortion)
- MUSIC POWER(IHF) 108W (4Ω 1,000Hz)
  88W (8Ω 1,000Hz)
- CONTINUOUS POWER (each channel driven)
  .....24W/ch. (4Ω 1,000Hz)
  20W/ch. (8Ω 1,000Hz)
- CONTINUOUS POWER (all channels driven)
  .....15×4W (8Ω 1,000Hz)
  12×4W (8Ω 20 to 20,000Hz)
- MUSIC POWER (IHF, B.T.L. connection)
  .....160W (4Ω 1,000Hz)
  144W (8Ω 1,000Hz)
- CONTINUOUS POWER (B.T.L. connection)
  - Each Channel Driven ..50/50W (8Ω 1,000Hz)
  - All Channels Driven....40+40W (8Ω 1,000Hz)

TOTAL HARMONIC DISTORTION (at rated power output)
- PRE AMPLIFIER ONLY....less than 0.05%
- MAIN (POWER) AMPLIFIER ONLY
  .....less than 0.1%

INTERMODULATION DISTORTION (at rated output 70Hz : 7,000Hz=4 : 1 SMPTE method)
- MAIN (POWER) AMPLIFIER ONLY
  .....less than 0.15%

POWER BANDWIDTH (IHF)..10 to 30,000Hz

FREQUENCY RESPONSE (power output at 1 Watt)
- OVERALL (from AUX)....20 to 40,000Hz $^{+1}_{-2}$ dB
- MAIN (POWER) AMPLIFIER ONLY
  .....10 to 50,000Hz ±1dB

RIAA CURVE DEVIATION..30 to 15,000Hz ±0.5dB

LOAD IMPEDANCE.....4 to 16Ω

DAMPING FACTOR.....100 (8Ω)

INPUT SENSITIVITY AND IMPEDANCE (at 1,000Hz)
- PHONO-1, 2 .....2.5mV 50kΩ
  - Max. Input Capability..270mV (T.H.D. : less than 0.5%)
- 4-CH. TUNER.....100mV 50kΩ
- 4-CH. AUX-1, 2.....100mV 50kΩ
- 2-CH. TAPE DECK-1, 2
  - Pin 100mV 50kΩ
  - DIN 100mV 50kΩ
- 4-CH. TAPE DECK-1, 2....100mV 50kΩ
- MAIN (POWER) INPUT....800mV 50kΩ

OUTPUT LEVEL AND IMPEDANCE (at 1,000Hz)
- 2-CH. TAPE DECK
  - Pin 100mV 2kΩ
  - DIN 30mV 65kΩ
- 4-CH. TAPE DECK-1, 2....100mV 2kΩ
- PRE OUTPUT.....800mV 600Ω
  - Max. Output Voltage ..6.5V (T.H.D. : less than 0.5%)

HUM AND NOISE (IHF)
- PHONO-1, 2 .....better than 70dB
- 4-CH. TUNER.....better than 80dB
- 4-CH. AUX-1, 2.....better than 80dB
- MAIN (POWER)INPUT....better than 90dB

CROSSTALK (rated output at 1,000Hz)
- PHONO-1, 2 .....better than 45dB
- 4-CH. TUNER.....better than 50dB
- 4-CH. AUX-1, 2.....better than 50dB
- MAIN (POWER) INPUT ..better than 60dB

CONTROLS
- BASS .....+15dB, −15dB at 50Hz
- TREBLE .....+15dB, −15dB at 15,000Hz
- LOUDNESS (Volume Control at −30dB)
  .....+8dB at 50Hz
  +3dB at 10,000Hz

LEVEL METER.....0dB=100mV

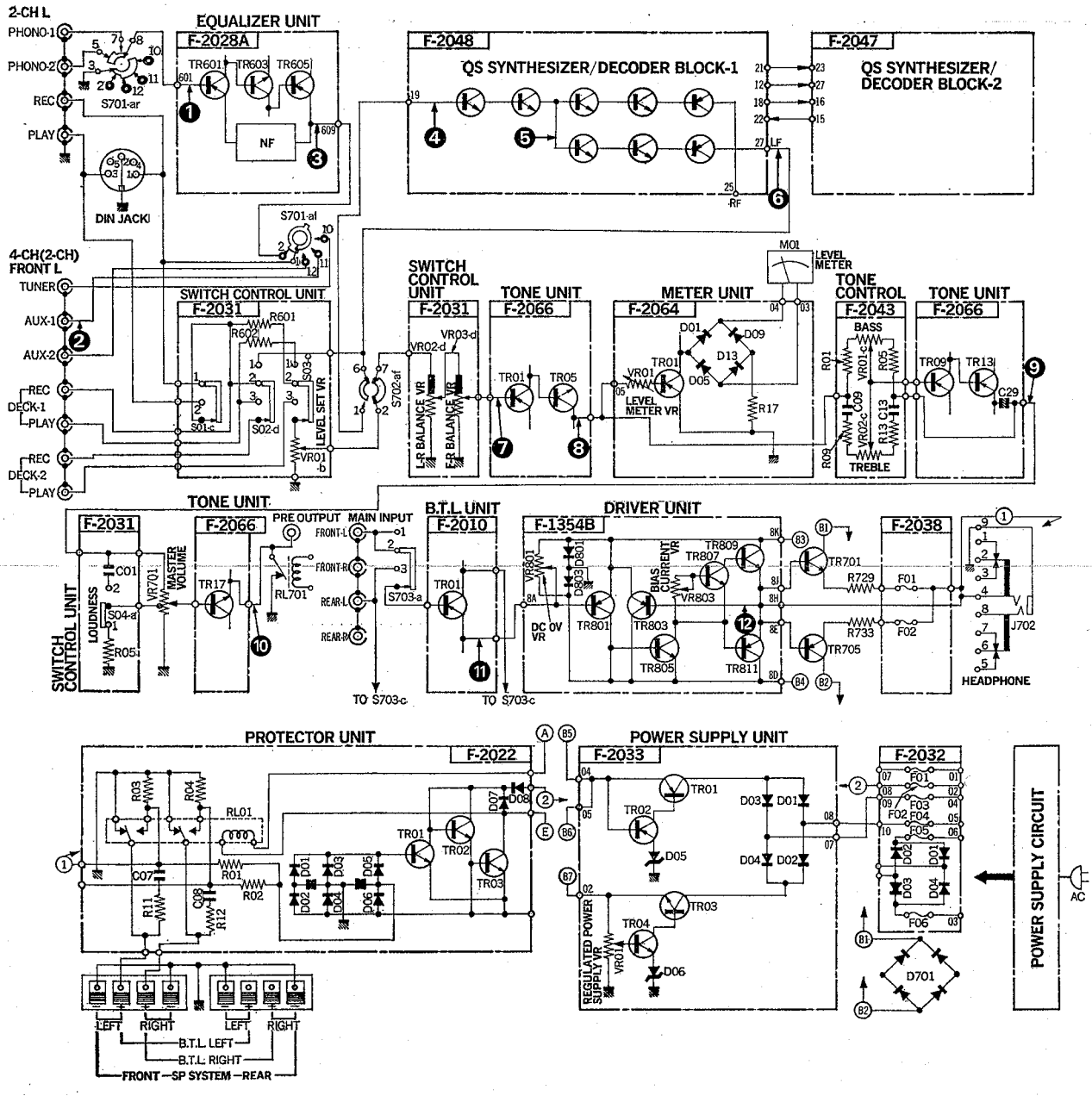
4-CHANNEL SYNTHESIZER/DECODER CIRCUIT
.....QS regular matrix system with vario-matrix circuit

OTHERS
- SEMICONDUCTORS
  - TRANSISTORS 97
  - FETs..... 2
  - ZENER DIODES..... 2
  - DIODES 62
- POWER REQUIREMENTS..100, 117, 220, 240V 50/60Hz
- AC OUTLETS
  - SWITCHED 50W
  - UNSWITCHED .....total 300W
- POWER CONSUMPTION..115W (rated), 340VA (max.)
- DIMENTIONS .....140mm (5 9/16") H, 440mm (17 3/8") W, 322mm (12 11/16") D
- WEIGHT.....14kg (30.9 lbs)

* Design and specification subject to change without notice for improvements.

2. BLOCK DIAGRAM AND LEVEL DIAGRAM

2-1. Block Diagram



S701-af~cr SELECTOR
1. PHONO-2
2. PHONO-1
3. TUNER
4. AUX-1
5. AUX-2

S702-af~er FUNCTION
1. 2-CH
2. QS SYNTHESIZER HALL
3. QS SYNTHESIZER SURROUND
4. QS SURROUND
5. QS HALL
6. PHASE MATRIX
7. DISCRETE

S703-a~d B.T.L. SWITCH
1. FRONT SIGNAL
2. OFF
3. REAR SIGNAL

S704 POWER SWITCH
1. OFF
2. ON

S01-a~d 2-CH TAPE MONITOR
1. SOURCE
2. PLAYBACK

S02-a~d 4-CH TAPE MONITOR
1. DECORDER SIGNAL
2. SOURCE
3. DECK 1▶2

S03-a~d 4-CH TAPE MONITOR
1. PLAYBACK DECK-1
2. SOURCE
3. PLAYBACK DECK-2

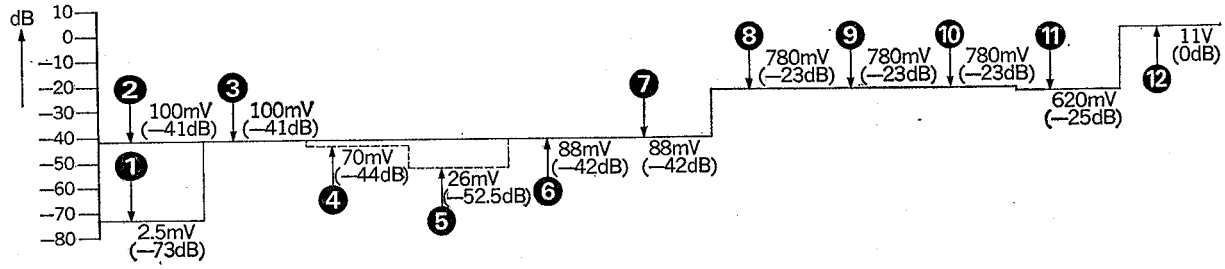
S04-a~d LOUDNESS
1. OUT
2. IN

2-2. Level Diagram

*Each number (①, ②, ③..) indicated in Level Diagram corresponds to the number in Block Diagram.

1. MASTER VOLUME, LEVEL SET volume control .....Maximum
2. BASS, TREBLE, BALANCE volume control..Center
3. Input.....PHONO-1 2.5mV 1kHz Sine Wave
   AUX-1 100mV 1kHz Sine Wave (output impedance of 600Ω at an audio oscillator)
4. Output.... 11V (15W) 8Ω

Note: Each voltage value is for reference and measured by a VTVM. In some recorders, the actual voltage value is in minor difference from the reference value.



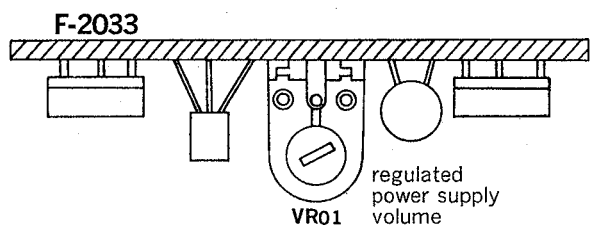
3. ADJUSTMENTS

3-1. Regulated Power Supply Board Adjustment (See Fig. 3-1)

Note: 1. Function.....QS Synthesizer
2. Master Volume.....Minimum

STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
1	Regulated Power supply	DC volt meter	F-2033 terminal 03	F-2033 VR01	25±0.1V	

Fig. 3-1

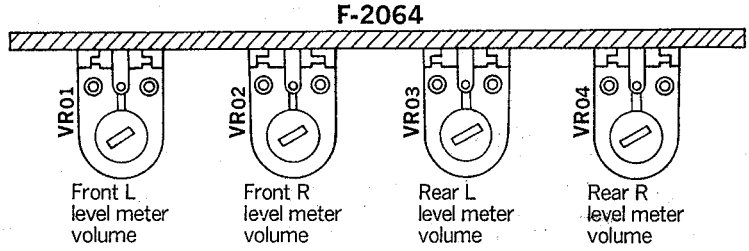


3-2. Level Meter Adjustment (See Fig. 3-2)

Note: 1. Function.....QS Synthesizer
2. Selector.....AUX-1
3. Master Volume.....Minimum
4. Level Set Volume.....Maximum
5. For adjustment, run the unit for more than 2 minutes after the power is switched on.

STEP	SUBJECT	FEED SIGNAL FROM	FEED SIGNAL TO	MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
1	Level Meter	1kHz Output: 100mV Audio Oscillator	FRONT, REAR AUX-1 L, R-ch	Level Meter	F-2064 VR01 (front L) VR02 (front R) VR03 (rear L) VR04 (rear R)	0 level	○Feed signal to 4-CH (both FRONT and REAR)

Fig. 3-2



3-3. Driver Circuit Board Adjustment (See Figs. 3-3 and 3-4)

Note: 1. Master Volume.....Minimum
2. Make the SP terminal free (no load).
3. Confirm the AC Power Supply voltage.
4. After adjustment, run the unit for more than 5 minutes, then check and readjust necessary.
5. Room temperature should be 18~28°C (65~83°F) for bias current adjustment.

STEP	SUBJECT	EQUIPMENT	MEASURE OUTPUT	ADJUST	ADJUST FOR	CONDITION
1	DC 0V Front L-ch	DC volt meter	F-1354B terminal 8H (left side board)	F-1354B VR801 (left side board)	0V	o Step down mete's range accordingly
2	DC 0V Front R-ch	Same as above	F-1354B terminal 8P (left side board)	F-1354B VR802 (left side board)	Same as above	Same as above
3	DC 0V Rear L-ch	Same as above	F-1354B terminal 8H (right side board)	F-1354B VR801 (right side board)	Same as above	Same as above
4	DC 0V Rear R-ch	Same as above	F-1354B terminal 8P (right side board)	F-1354B VR802 (right side board)	Same as above	Same as above
5	Bias current Front L-ch	DC miliammeter	F-2038 F01 Fig. 3-4	F-1354B VR803 (left side board)	25mA	o Step down meter's range accordingly
6	Bias current Front R-ch	Same as above	F-2038 F03 Fig. 3-4	F-1354B VR804 (left side board)	Same as above	Same as above
7	Bias current Rear L-ch	Same as above	F-2038 F05 Fig. 3-4	F-1354B VR803 (right side board)	Same as above	Same as above
8	Bias current Rear R-ch	Same as above	F-2038 F07 Fig. 3-4	F-1354B VR804 (right side board)	Same as above	Same as above

Fig. 3-3

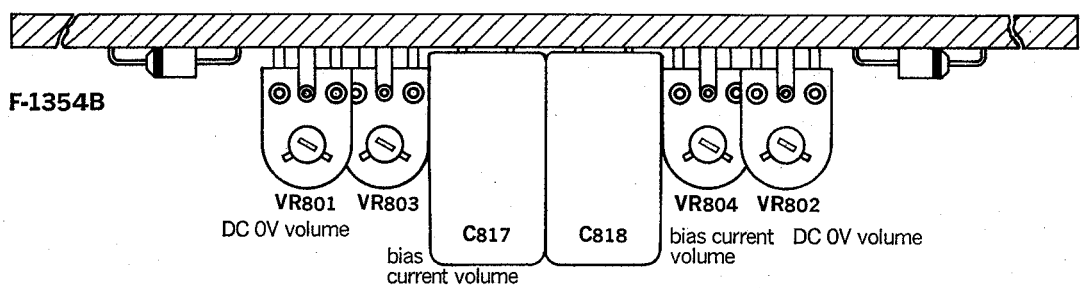
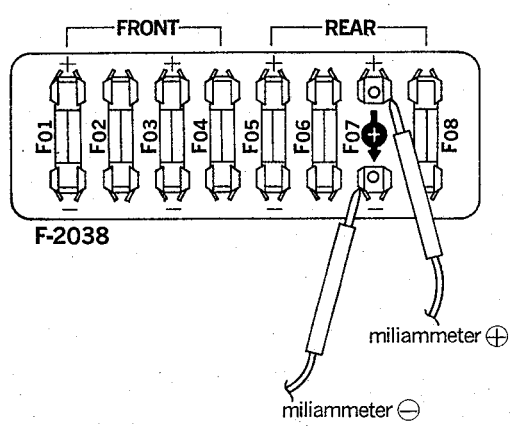


Fig. 3-4



4. TROUBLESHOOTING CHART

4-1. Troubleshooting on Power Supply Section

Symptom | **Check Point** | **Cause & What to Do**

1. No power supplied to each section

1-1. Each lamp not lighted
- 1. Power supply cord open
- 2. Power fuse F701 open
- 3. Imperfect contact of power switch S704
- 4. Defective power transformer T701

1-2. Each lamp lighted

1) +22V (−22V) not supplied to collector of power transistor
- 5. Defective D701

2) +33.5V (−33.5V) not supplied to terminal [8K], [8L]([8D], [8S]) on F-1354B
- 6. F05, F06 on F-2032 open
- 7. Defective D01, D04 (D02, D03) on F-2032

3) No power supplied to terminal [02] [04] on F-2033
- 8. F03, F04 on F-2032 open

4) +25V not supplied to terminal [02] on F-2033
- 9. Defective D02, D04 on F-2033
- 10. Defective TR03 on F-2033

5) −44V not supplied to terminal [04] on F-2033
- 11. Defective D01, D03 on F-2033
- 12. Defective TR01 on F-2033

6) Wrong voltage supplied to terminal [02] on F-2033
- 13. Defective TR03 on F-2033
- 14. Defective TR04 on F-2033
- 15. Defective D06 on F-2033
- 16. Imperfect contact of VR01 on F-2033
- 17. Defective D05 on F-2033
- 18. Defective TR01 on F-2033
- 19. Defective TR02 on F-2033

7) Wrong voltage supplied to terminal [04] on F-2033

4-2. Troubleshooting on Protector Section

1. Protector circuit inoperative

(In case that DC voltage between center and ground on power section is over 2.5V)
- 1. Defective D01~D06 on F-2022
- 2. Defective TR01 on F-2022

2. No output power from both speaker terminals approx 10 minutes after the power is on

(Grounding of PRE OUT and speaker terminals not released)
- 3. Defective D08 on F-2022
- 4. Defective D07 on F-2022
- 5. Imperfect contact of headphone jack (J702, J703)
- 6. Defective RL01 on F-2022
- 7. Defective RL701
- 8. Defective TR03 on F-2022

3. Generates popping noise after the power is ON
- 9. Defective TR01~TR03 on F-2022

4-3. Troubleshooting on 2-CH Section

Symptom | **Check Point** | **Cause & What to Do**

*Set B.T.L. switch to off

1. One channel inoperative

1) Quick Acting Fuses open
F01, F02 (F03, F04) on F-2038
- 1-1) After replacement, quick acting fuse opens again → 1. Defective main amp. (See 4-7.)
- 1-2) After replacement, quick acting fuse not open → 2. Confirm the center voltage which is within 2.5V

2) Quick Acting Fuses not open
F01, F02 (F03, F04) on F-2038
- 2-1) Reverse L and R-ch at PRE OUT, MAIN IN
  - 1) No sound at all → 3. Defective main amp. (See 4-7.)
  - 2) R and L-ch sound reverses
    - 2-1) Level meter operative → 4. Defective TR09, TR13, TR17 (TR10, TR14, TR18) on F-2066
    - 2-2) Level meter inoperative → 5. Imperfect contact of S701-af (S701-bf) on SELECTOR switch
      - 6. Imperfect contact of S01-c (S01-d) on 2-CH TAPE MONITOR switch
      - 7. Imperfect contact of S03-c (S03-d) on 4-CH TAPE MONITOR switch
      - 8. Imperfect contact of S702-af (S702-bf) on FUNCTION switch
      - 9. Defective TR01, TR05 (TR02, TR06) on F-2066

2. Both channels inoperative
- 10. Defective power section (See 4-1.)
- 11. Grounding of PRE OUT and speaker terminals not released (See 4-2.)
- 1) Protector circuit board F-2022 operative → 12. Even if center voltage on one channel is more than 2.5V on F-1354B, both (or 4 channel) function would be inoperative by protector circuit

4-4. Troubleshooting on PHONO-1, 2 Section

1. One channel inoperative
- 1. Imperfect contact of S701-ar (S701-br) on SELECTOR switch
- 2. Defective TR601, TR603, TR605 (TR602, TR604, TR606) on F-2028A
- 3. Imperfect contact of S701-af (S701-bf) on SELECTOR switch

4-5. Level Meter Inoperative

Symptom	Check Point	Cause & What to Do
(When switching to FRONT L-ch position)		1. Defective level meter M01
		2. Defective D01, D05, D09, D13 on F-2064
		3. Defective TR01 on F-2064
		4. Imperfect contact of VR01 on F-2064

4-6. Troubleshooting on QS SYNTHESIZER Section

(2-CH of FUNCTION switch operative)

1. Both Front and Rear function inoperative

1. Defective TR01~TR04 on F-2048

2. Front function inoperative

1) L-ch inoperative
   2. Defective TR05, TR09, TR13 on F-2048
   3. Imperfect contact of S702-af on FUNCTION switch

2) R-ch inoperative
   4. Defective TR06, TR10, TR14 on F-2048
   5. Imperfect contact of S702-bf on FUNCTION switch

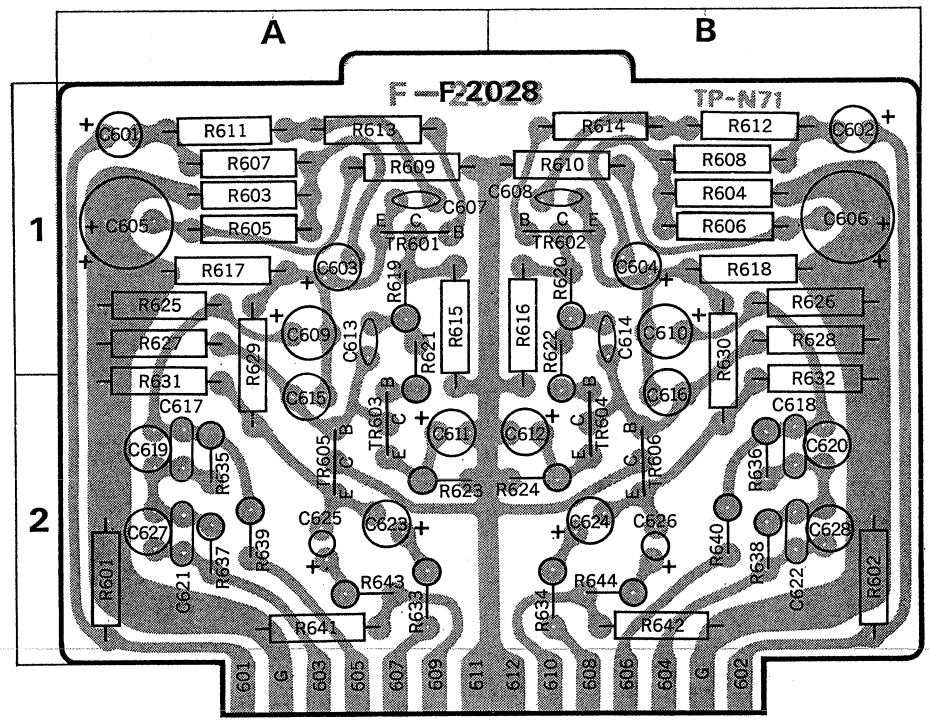
4-7. Troubleshooting on Main Section

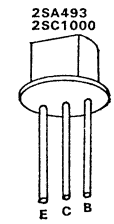
1. Defective TR701, TR702 on F-1354B
2. Defective TR809, TR811 on F-1354B
3. Defective TR807 on F-1354B
4. Defective TR801, TR803 on F-1354B

5. PARTS LOCATIONS AND PARTS LIST

5-1. F-2028A Equalizer Circuit Board (Stock No. 7550430 Complete Circuit Board F-2028A)

Conductor Side





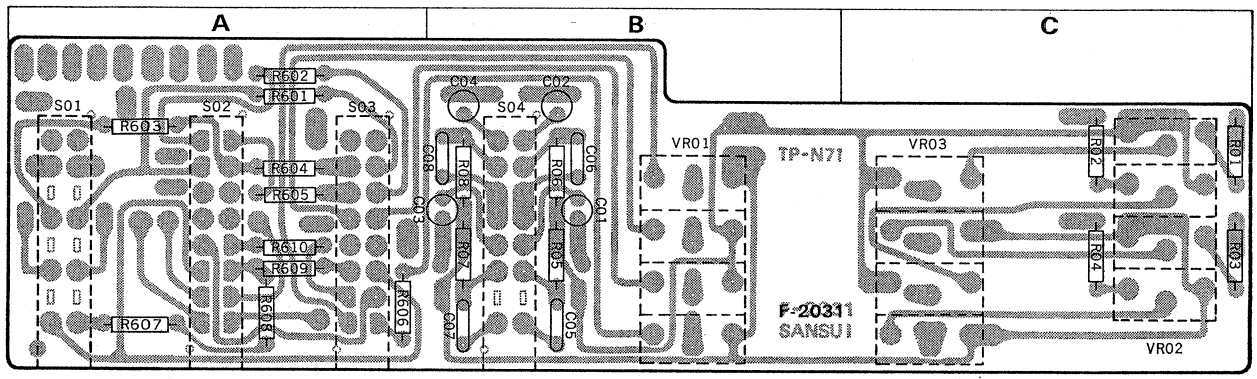
Parts List

Parts No.	Stock No.	Description				Position
TR601	0300451 or 0300410, 1	2SA493 (GR) or 2SA726Ⓡ (F. G)			Transistor	1 A
TR602	0300451 or 0300410, 1	2SA493 (GR) or 2SA726Ⓡ (F. G)				1 B
TR603	0305880 or 0306070, 1	2SC1000 (GR) or 2SC1313Ⓡ (F. G)				2 A
TR604	0305880 or 0306070, 1	2SC1000 (GR) or 2SC1313Ⓡ (F. G)				2 B
TR605	0300451 or 0300410, 1	2SA493 (GR) or 2SA726Ⓡ (F. G)				2 A
TR606	0300451 or 0300410, 1	2SA493 (GR) or 2SA726Ⓡ (F. G)				2 B
C601	0573229	2.2μF	±20%	25V	T.C.	1 A
C602	0573229	2.2μF	±20%	25V	T.C.	1 B
C603	0513100	10μF		25V	E.C.	1 A
C604	0513100	10μF		25V	E.C.	1 B
C605	0515330	33μF		50V	E.C.	1 A
C606	0515330	33μF		50V	E.C.	1 B
C607	0660151	150pF		50V	C.C.	1 A
C608	0660151	150pF		50V	C.C.	1 B
C609	0514470	47μF		35V	E.C.	1 A
C610	0514470	47μF		35V	E.C.	1 B
C611	0511330	33μF		10V	E.C.	2 A
C612	0511330	33μF		10V	E.C.	2 B

Parts No.	Stock No.	Description				Position
C613	0660120	6.8pF	±10%	50V	C.C.	1 A
C614	0660120	6.8pF	±10%	50V	C.C.	1 B
C615	0620391	390pF	± 5 %	50V	P.C.	2 A
C616	0620391	390pF	± 5 %	50V	P.C.	2 B
C617	0600226	0.0022μF	± 5 %	50V	M.C.	2 A
C618	0600226	0.0022μF	± 5 %	50V	M.C.	2 B
C619	0620221	220pF	± 5 %	50V	P.C.	2 A
C620	0620221	220pF	± 5 %	50V	P.C.	2 B
C621	0600806	0.008μF	± 5 %	50V	M.C.	2 A
C622	0600806	0.008μF	± 5 %	50V	M.C.	2 B
C623	0515100	10μF		50V	E.C.	2 A
C624	0515100	10μF		50V	E.C.	2 B
C625	0519101	1μF		50V	E.C.	2 A
C626	0519101	1μF		50V	E.C.	2 B
C627	0620152	1500pF	± 5 %	50V	P.C.	2 A
C628	0620152	1500pF	± 5 %	50V	P.C.	2 B
R601	0107563	56kΩ				2 A
R602	0107563	56kΩ				2 B
R603	0107473	47kΩ				1 A
R604	0107473	47kΩ				1 B
R605	0107124	120kΩ				1 A
R606	0107124	120kΩ				1 B
R607	0107104	100kΩ	± 5 %	¼W	C.R.	1 A
R608	0107104	100kΩ	± 5 %	¼W	C.R.	1 B
R609	0107104	100kΩ	± 5 %	¼W	C.R.	1 A
R610	0107104	100kΩ	± 5 %	¼W	C.R.	1 B
R611	0107222	2.2kΩ	± 5 %	¼W	C.R.	1 A
R612	0107222	2.2kΩ	± 5 %	¼W	C.R.	1 B
R613	0107221	220Ω	± 5 %	¼W	C.R.	1 A

5-2. F-2031 Switch Control Circuit Board (Stock No. 7591470 Complete Circuit Board F-2031)

Conductor Side



F-2028A Parts List

Parts No.	Stock No.	Description	Position
R614	0107221	220Ω	1 B
R615	0107223	22kΩ	1 A
R616	0107223	22kΩ ± 5 % ¼W C.R.	1 B
R617	0107104	100kΩ	1 A
R618	0107104	100kΩ	1 B
R619	0106561	560Ω	1 A
R620	0106561	560Ω	1 B
R621	0106561	560Ω	1, 2 A
R622	0106561	560Ω ± 5 % ¼W C.R. (E.L.R.)	1, 2 B
R623	0106122	1.2kΩ	2 A
R624	0106122	1.2kΩ	2 B
R625	0107821	820Ω	1 A
R626	0107821	820Ω	1 B
R627	0107683	68kΩ	1 A
R628	0107683	68kΩ ± 5 % ¼W C.R.	1 B
R629	0107824	820kΩ	1, 2 A
R630	0107824	820kΩ	1, 2 B
R631	0107682	6.8kΩ	2 A
R632	0107682	6.8kΩ	2 B
R633	0106561	560Ω	2 A
R634	0106561	560Ω	2 B
R635	0106273	27kΩ ± 5 % ¼W C.R. (E.L.R.)	2 A
R636	0106273	27kΩ	2 B
R637	0106564	560kΩ	2 A
R638	0106564	560kΩ	2 B
R641	0107683	68kΩ ± 5 % ¼W C.R.	2 A
R642	0107683	68kΩ	2 B
R643	0106152	1.5kΩ ± 5 % ¼W C.R. (E.L.R.)	2 A
R644	0106152	1.5kΩ	2 B

F-2031 Parts List

Parts No.	Stock No.	Description	Position
C01	0620911	910pF ± 5 % 50V P.C.	B
C02	0620911	910pF	B
C03	0620911	910pF	B
C04	0620911	910pF	B
C05	0600108	0.1μF ± 5 % 50V M.C.	B
C06	0600108	0.1μF	B
C07	0600108	0.1μF	B
C08	0600108	0.1μF	B
R01	0107103	10kΩ	C
R02	0107103	10kΩ	C
R03	0107103	10kΩ	C
R04	0107103	10kΩ	C
R05	0107562	5.6kΩ	B
R06	0107562	5.6kΩ	B
R07	0107562	5.6kΩ	B
R08	0107562	5.6kΩ	B
R601	0107479	4.7Ω ± 5 % ¼W C.R.	A
R602	0107479	4.7Ω	A
R603	0107479	4.7Ω	A
R604	0107479	4.7Ω	A
R605	0107479	4.7Ω	A
R606	0107479	4.7Ω	A
R607	0107479	4.7Ω	A
R608	0107479	4.7Ω	A
R609	0107479	4.7Ω	A
R610	0107479	4.7Ω	A
VR01	1060150, 1	250kΩ (B) × 4 Variable Resistor	B
VR02	1060180, 1	250kΩ (MN) × 4 Variable Resistor	C
VR03	1060190, 1	250kΩ (MN) × 4 Variable Resistor	C
S01	1170300	SLC14251 Lever Switch	A
S02	1170290	SLC14351 Lever Switch	A
S03	1170290	SLC14351 Lever Switch	A
S04	1170270	SLC14201 Lever Switch	B

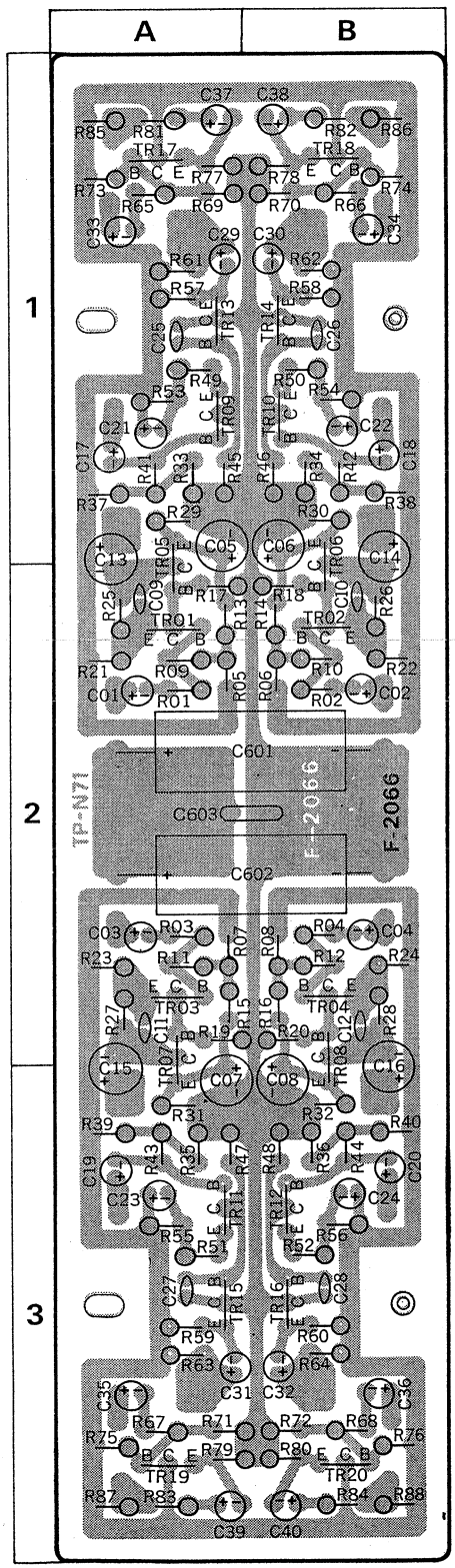
Abbreviations

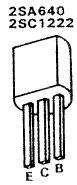
C.R.	: Carbon Resistor	BP.E.C.	: Bi-Pola Electrolytic Capacitor
S.R.	: Solid Resistor	C.C.	: Ceramic Capacitor
Ce.R.	: Cement Resistor	Mi.C.	: Mica Capacitor
M.R.	: Metallized Film Resistor	O.C.	: Oil Capacitor
M.C.	: Mylar Capacitor	P.C.	: Polystyrene Capacitor
E.C.	: Electrolytic Capacitor	T.C.	: Tantalum Capacitor

5-3. F-2066 Tone Circuit Board

(Stock No. 7560650 Complete Circuit Board F-2066)

Conductor Side





Parts List

Parts No.	Stock No.	Description		Position
TR01	0300302, 3	2SA640 ② (K, L)	Transistor	2A
TR02	0300302, 3	2SA640 ② (K, L)		2B
TR03	0300302, 3	2SA640 ② (K, L)		2A
TR04	0300302, 3	2SA640 ② (K, L)		2B
TR05	0306011	2SC1222 (E)		1, 2A
TR06	0306011	2SC1222 (E)		1, 2B
TR07	0306011	2SC1222 (E)		2, 3A
TR08	0306011	2SC1222 (E)		2, 3B
TR09	0300302, 3	2SA640 ② (K, L)		1A
TR10	0300302, 3	2SA640 ② (K, L)		1B
TR11	0300302, 3	2SA640 ② (K, L)		3A
TR12	0300302, 3	2SA640 ② (K, L)		3B
TR13	0300302, 3	2SA640 ② (K, L)		1A
TR14	0300302, 3	2SA640 ② (K, L)		1B
TR15	0300302, 3	2SA640 ② (K, L)		3A
TR16	0300302, 3	2SA640 ② (K, L)		3B
TR17	0306011	2SC1222 (E)		1A
TR18	0306011	2SC1222 (E)		1B
TR19	0306011	2SC1222 (E)		3A
TR20	0306011	2SC1222 (E)		3B
C01	0573478	0.47μF 25V	T.C.	2A
C02	0573478	0.47μF 25V		2B
C03	0573478	0.47μF 25V		2A
C04	0573478	0.47μF 25V		2B
C05	0512470	47μF 16V	E.C.	1A
C06	0512470	47μF 16V		1B
C07	0512470	47μF 16V		2, 3A
C08	0512470	47μF 16V		2, 3B
C09	0660100	10pF 50V	C.C.	2A
C10	0660100	10pF 50V		1B
C11	0660100	10pF 50V		2A
C12	0660100	10pF 50V		2B
C13	0519106	4.7μF 50V	E.C.	1, 2A
C14	0519106	4.7μF 50V		1, 2B
C15	0519106	4.7μF 50V		2, 3A
C16	0519106	4.7μF 50V		2, 3B
C17	0519101	1μF 50V		1A, 2A
C18	0519101	1μF 50V		1B, 2B
C19	0519101	1μF 50V		3A
C20	0519101	1μF 50V		3B
C21	0512330	33μF 16V		1A
C22	0512330	33μF 16V		1B
C23	0512330	33μF 16V		3A
C24	0512330	33μF 16V		3B
C25	0660100	10pF 50V	C.C.	1A
C26	0660100	10pF 50V		1B
C27	0660100	10pF 50V		3A
C28	0660100	10pF 50V		3B
C29	0519101	1μF 50V	E.C.	1A
C30	0519101	1μF 50V		1B
C31	0519101	1μF 50V		3A
C32	0519101	1μF 50V		3B
C33	0519102	3.3μF 50V		1A
C34	0519102	3.3μF 50V		1B
C35	0519102	3.3μF 50V		3A
C36	0519102	3.3μF 50V		3B
C37	0519102	3.3μF 50V		1A
C38	0519102	3.3μF 50V		1B
C39	0519102	3.3μF 50V		3A
C40	0519102	3.3μF 50V		3B
C601	0505101	100μF 50V		2A, B

Parts No.	Stock No.	Description	Position
C602	0505101	100μF 50V E.C.	2 A, B
C603	0601477	0.047μF 50V M.C.	2 A, B
R01	0106122	1.2kΩ	2 A
R02	0106122	1.2kΩ	2 B
R03	0106122	1.2kΩ	2 A
R04	0106122	1.2kΩ	2 B
R05	0106473	47kΩ	2 A
R06	0106473	47kΩ	2 B
R07	0106473	47kΩ	2 A
R08	0106473	47kΩ	2 B
R09	0106394	390kΩ	2 A
R10	0106394	390kΩ	2 B
R11	0106394	390kΩ	2 A
R12	0106394	390kΩ	2 B
R13	0106564	560kΩ	2 A
R14	0106564	560kΩ	2 B
R15	0106564	560kΩ	2 A
R16	0106564	560kΩ	2 B
R17	0106224	220kΩ	2 A
R18	0106224	220kΩ	2 B
R19	0106224	220kΩ	2 A
R20	0106224	220kΩ	2 B
R21	0106331	330Ω	2 A
R22	0106331	330Ω	2 B
R23	0106331	330Ω	2 A
R24	0106331	330Ω	2 B
R25	0106272	2.7kΩ	2 A
R26	0106272	2.7kΩ	2 B
R27	0106272	2.7kΩ	2 A
R28	0106272	2.7kΩ	2 B
R29	0106102	1kΩ ± 5% ¼W C.R. (E.L.R.)	1 A
R30	0106102	1kΩ	1 B
R31	0106102	1kΩ	3 A
R32	0106102	1kΩ	3 B
R33	0106394	390kΩ	1 A
R34	0106394	390kΩ	1 B
R35	0106394	390kΩ	3 A
R36	0106394	390kΩ	3 B
R37	0106333	33kΩ	1 A
R38	0106333	33kΩ	1 B
R39	0106333	33kΩ	3 A
R40	0106333	33kΩ	3 B
R41	0106394	390kΩ	1 A
R42	0106394	390kΩ	1 B
R43	0106394	390kΩ	3 A
R44	0106394	390kΩ	3 B
R45	0106183	18kΩ	1 A
R46	0106183	18kΩ	1 B
R47	0106183	18kΩ	3 A
R48	0106183	18kΩ	3 B
R49	0106151	150Ω	1 A
R50	0106151	150Ω	1 B
R51	0106151	150Ω	3 A
R52	0106151	150Ω	3 B
R53	0106102	1kΩ	1 A
R54	0106102	1kΩ	1 B
R55	0106102	1kΩ	3 A
R56	0106102	1kΩ	3 B
R57	0106392	3.9kΩ	1 A
R58	0106392	3.9kΩ	1 B
R59	0106392	3.9kΩ	3 A

Parts No.	Stock No.	Description	Position
R60	0106392	3.9kΩ	3 B
R61	0106184	180kΩ	1 A
R62	0106184	180kΩ	1 B
R63	0106184	180kΩ	3 A
R64	0106184	180kΩ	3 B
R65	0106122	1.2kΩ	1 A
R66	0106122	1.2kΩ	1 B
R67	0106122	1.2kΩ	3 A
R68	0106122	1.2kΩ	3 B
R69	0106474	470kΩ	1 A
R70	0106474	470kΩ	1 B
R71	0106474	470kΩ	3 A
R72	0106474	470kΩ	3 B
R73	0106224	220kΩ	1 A
R74	0106224	220kΩ ± 5% ¼W C.R. (E.L.R.)	1 B
R75	0106224	220kΩ	3 A
R76	0106224	220kΩ	3 B
R77	0106392	3.9kΩ	1 A
R78	0106392	3.9kΩ	1 B
R79	0106392	3.9kΩ	3 A
R80	0106392	3.9kΩ	3 B
R81	0106471	470Ω	1 A
R82	0106471	470Ω	1 B
R83	0106471	470Ω	3 A
R84	0106471	470Ω	3 B
R85	0106473	47kΩ	1 A
R86	0106473	47kΩ	1 B
R87	0106473	47kΩ	3 A
R88	0106473	47kΩ	3 B

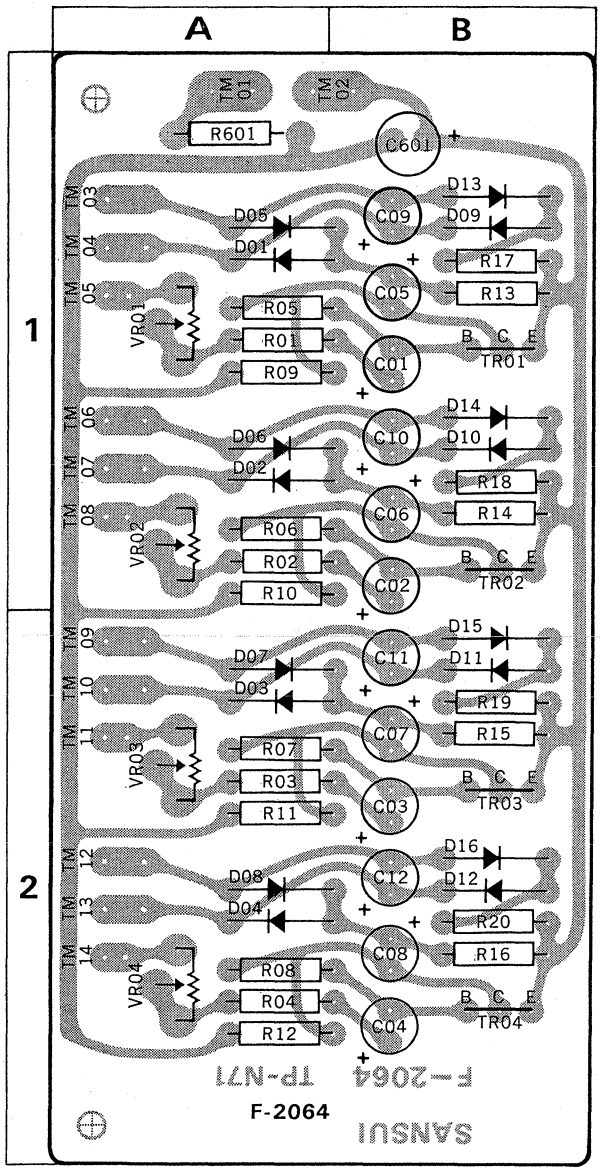
Abbreviations

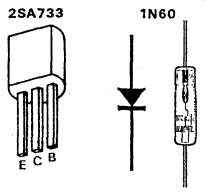
C.R.	:	Carbon Resistor	BP.E.C.	:	Bi-Pola Electrolytic Capacitor
S.R.	:	Solid Resistor	C.C.	:	Ceramic Capacitor
Ce.R.	:	Cement Resistor	Mi.C.	:	Mica Capacitor
M.R.	:	Metallized Film Resistor	O.C.	:	Oil Capacitor
M.C.	:	Mylar Capacitor	P.C.	:	Polystyrene Capacitor
E.C.	:	Electrolytic Capacitor	T.C.	:	Tantalum Capacitor

5-4. F-2064 Meter Circuit Board

[(Stock No. 7591480 Complete Circuit Board F-2064)

Conductor Side





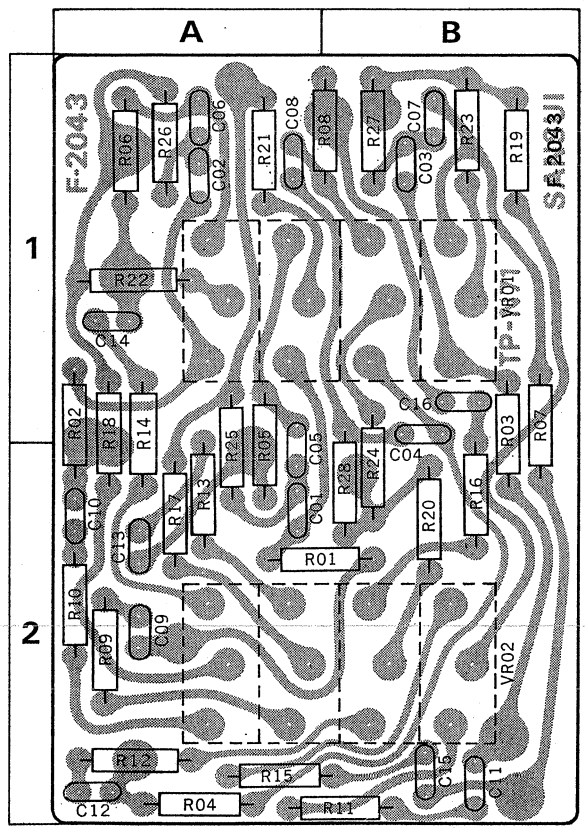
Parts List

Parts No.	Stock No.	Description	Position
TR01	0300510, 1	2SA733 (P,Q) } Transistor	1 B
TR02	0300510, 1	2SA733 (P,Q)	1 B
TR03	0300510, 1	2SA733 (P,Q)	2 B
TR04	0300510, 1	2SA733 (P,Q)	2 B
D01	0310330, 1	1N60 } Diode	1 A
D02	0310330, 1	1N60	1 A
D03	0310330, 1	1N60	2 A
D04	0310330, 1	1N60	2 A
D05	0310330, 1	1N60	1 A
D06	0310330, 1	1N60	1 A
D07	0310330, 1	1N60	2 A
D08	0310330, 1	1N60	2 A
D09	0310330, 1	1N60	1 B
D10	0310330, 1	1N60	1 B
D11	0310330, 1	1N60	2 B
D12	0310330, 1	1N60	2 B
D13	0310330, 1	1N60	1 B
D14	0310330, 1	1N60	1 B
D15	0310330, 1	1N60	2 B
D16	0310330, 1	1N60	2 B
C01	0601477	0.047μF 50V } M.C.	1 B
C02	0601477	0.047μF 50V	1 B
C03	0601477	0.047μF 50V	2 B
C04	0601477	0.047μF 50V	2 B
C05	0515109	1μF 50V } E.C.	1 B
C06	0515109	1μF 50V	1 B
C07	0515109	1μF 50V	2 B
C08	0515109	1μF 50V	2 B
C09	0515109	1μF 50V	1 B
C10	0515109	1μF 50V	1 B
C11	0515109	1μF 50V	2 B
C12	0515109	1μF 50V	2 B
C601	0513330	33μF 25V	1 B
R01	0107563	56kΩ	1 A
R02	0107563	56kΩ	1 A
R03	0107563	56kΩ	2 A
R04	0107563	56kΩ	2 A
R05	0107105	1MΩ	1 A
R06	0107105	1MΩ	1 A
R07	0107105	1MΩ	2 A
R08	0107105	1MΩ	2 A
R09	0107472	4.7kΩ	1 A
R10	0107472	4.7kΩ	1 A
R11	0107472	4.7kΩ ± 5 % ¼W C.R.	2 A
R12	0107472	4.7kΩ	2 A
R13	0107474	470kΩ	1 B
R14	0107474	470kΩ	1 B
R15	0107474	470kΩ	2 B
R16	0107474	470kΩ	2 B
R17	0107822	8.2kΩ	
R18	0107822	8.2kΩ	
R19	0107822	8.2kΩ	
R20	0107822	8.2kΩ	
R601	0103222	2.2kΩ ± 5 % ½W C.R.	1 A
VR01	1031140~2	100kΩ (B) } Semi-Variable Resistor	1 A
VR02	1031140~2	100kΩ (B)	1 A
VR03	1031140~2	100kΩ (B)	2 A
VR04	1031140~2	100kΩ (B)	2 A

5-5. F-2043 Tone Control Circuit Board

(Stock No. 7560660 Complete Circuit Board F-2043)

Conductor Side



Parts List

Parts No.	Stock No.	Description	Position
C01	0600307	0.03μF	2A
C02	0600307	0.03μF	1A
C03	0600307	0.03μF	1B
C04	0600307	0.03μF	1B
C05	0600307	0.03μF	1,2A
C06	0600307	0.03μF	1A
C07	0600307	0.03μF	1B
C08	0600307	0.03μF	1A
C09	0600806	0.008μF ± 5% 50V M.C.	2A
C10	0600806	0.008μF	2A
C11	0600806	0.008μF	2B
C12	0600806	0.008μF	2A
C13	0600806	0.008μF	2A
C14	0600806	0.008μF	1A
C15	0600806	0.008μF	2B
C16	0600806	0.008μF	1B
R01	0107822	8.2kΩ	2A, B
R02	0107822	8.2kΩ	1,2A
R03	0107822	8.2kΩ	1,2B
R04	0107822	8.2kΩ	2A
R05	0107822	8.2kΩ	1,2A
R06	0107822	8.2kΩ	1A
R07	0107822	8.2kΩ	1,2B
R08	0107822	8.2kΩ	1A, B
R09	0107102	1kΩ	2A
R10	0107102	1kΩ	2A
R11	0107102	1kΩ	2A, B
R12	0107102	1kΩ	2A
R13	0107102	1kΩ	2A
R14	0107102	1kΩ ± 5% ¼W C.R.	1,2A
R15	0107102	1kΩ	2A, B
R16	0107102	1kΩ	2B
R17	0107221	220Ω	2A
R18	0107221	220Ω	1,2A
R19	0107221	220Ω	1B
R20	0107221	220Ω	2B
R21	0107472	4.7kΩ	1A
R22	0107472	4.7kΩ	1A
R23	0107472	4.7kΩ	1B
R24	0107472	4.7kΩ	1,2B
R25	0107222	2.2kΩ	1,2B
R26	0107222	2.2kΩ	1A
R27	0107222	2.2kΩ	1B
R28	0107222	2.2kΩ	1,2B
VR01	1060160,1	100kΩ (B)×4 Dual Shaft Variable Resistor	1A, B
VR02	1060160,1	100kΩ (B)×4	2A, B

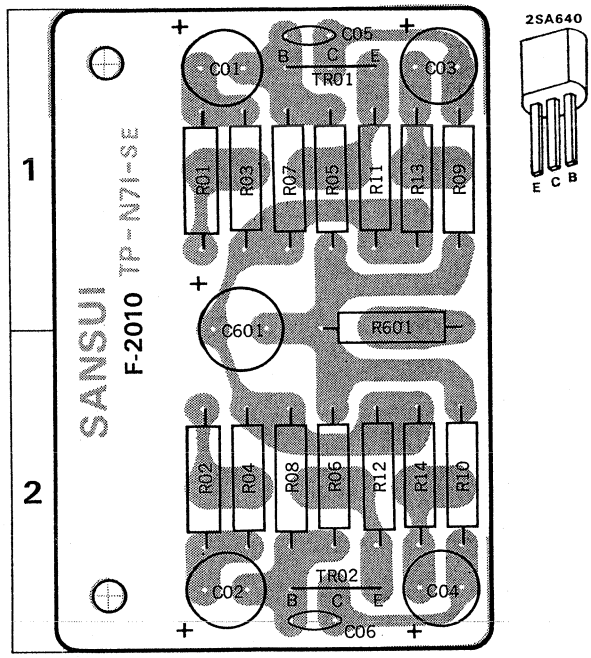
Abbreviations

C.R.	:	Carbon Resistor	BP.E.C.	:	Bi-Pola Electrolytic Capacitor
S.R.	:	Solid Resistor			
Ce.R.	:	Cement Resistor	C.C.	:	Ceramic Capacitor
M.R.	:	Metallized Film Resistor	Mi.C.	:	Mica Capacitor
			O.C.	:	Oil Capacitor
M.C.	:	Mylar Capacitor	P.C.	:	Polystyrene Capacitor
E.C.	:	Electrolytic Capacitor	T.C.	:	Tantalum Capacitor

5-6. F-2010 B.T.L. Circuit Board

(Stock No. 7591760 Complete Circuit Board F-2010)

Conductor Side



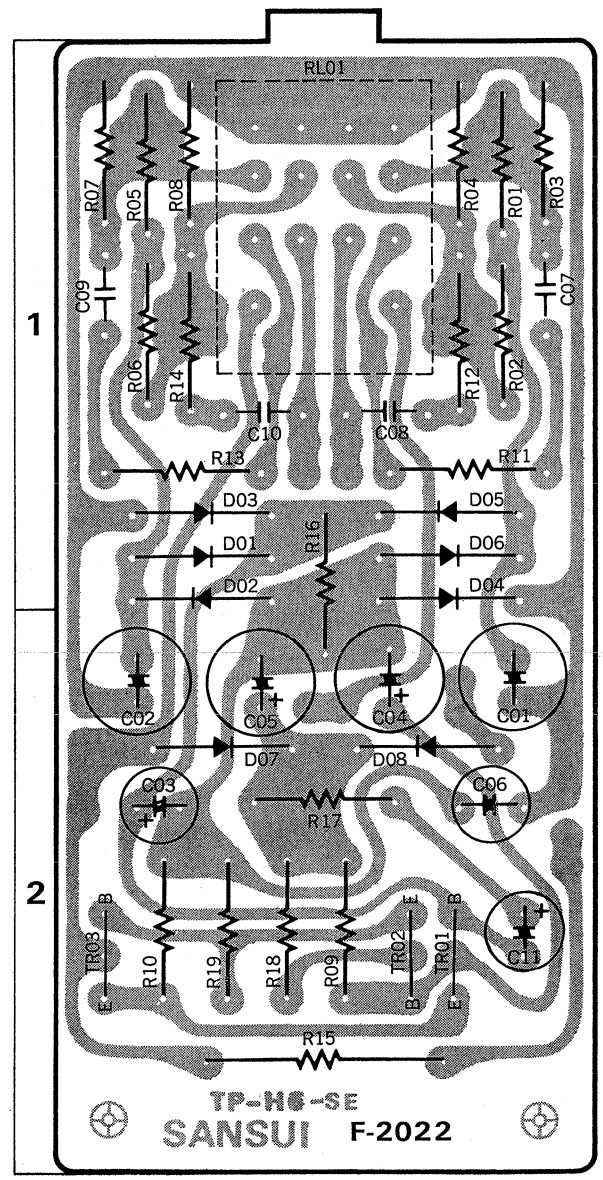
Parts List

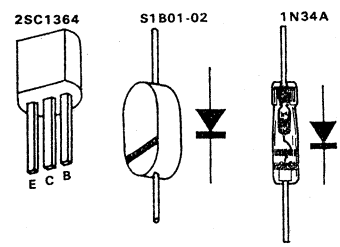
Parts No.	Stock No.	Description			Position
TR01	0300301,3,5	2SA640 (M, K, L)	Transistor		1
TR02	0300301,3,5	2SA640 (M, K, L)	Transistor		2
C01	0515339	3.3μF	50V	E.C.	1
C02	0515339	3.3μF	50V	E.C.	2
C03	0515339	3.3μF	50V	E.C.	1
C04	0515339	3.3μF	50V	E.C.	2
C05	0660150	15pF	±10% 50V	C.C.	1
C06	0660150	15pF	±10% 50V	C.C.	2
C601	0513470	47μF	25V	E.C.	1, 2
R01	0107561	560Ω			1
R02	0107561	560Ω			2
R03	0107394	390kΩ			1
R04	0107394	390kΩ			2
R05	0107224	220kΩ			1
R06	0107224	220kΩ			2
R07	0107823	82kΩ			1
R08	0107823	82kΩ	± 5%	¼W C.R.	2
R09	0107392	3.9kΩ			1
R10	0107392	3.9kΩ			2
R11	0107392	3.9kΩ			1
R12	0107392	3.9kΩ			2
R13	0107124	120kΩ			1
R14	0107124	120kΩ			2
R601	0107822	8.2kΩ			1, 2

5-7. F-2022 Protector Circuit Board

(Stock No. 7598130 Complete Circuit Board F-2022)

Conductor Side





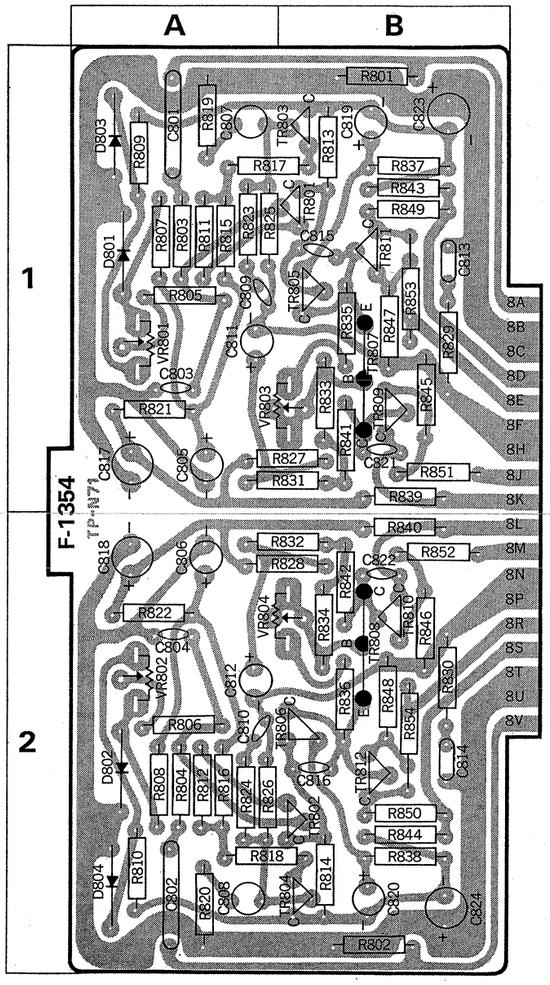
Parts List

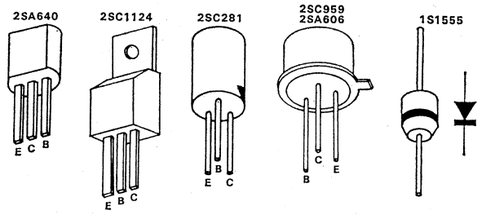
Parts No.	Stock No.	Description				Position
TR01	0306131~3	2SC1364 (6, 7, 8)			Transistor	2
TR02	0306131~3	2SC1364 (6, 7, 8)				2
TR03	0306131~3	2SC1364 (6, 7, 8)				2
D01	0310400	1N34A			Diode	1
D02	0310400	1N34A				1
D03	0310400	1N34A				1
D04	0310400	1N34A				1
D05	0310400	1N34A				1
D06	0310400	1N34A				1
D07	0311150	S1B01-02				2
D08	0311150	S1B01-02				2
C01	0530470	47μF	6.3V		E.C.	2
C02	0530470	47μF	6.3V			2
C03	0515109	1μF	50V			2
C04	0510331	330μF	6.3V			2
C05	0515330	33μF	50V			2
C06	0535109	1μF	50V			2
C07	0600108	0.1μF				1
C08	0600108	0.1μF	± 5 %	50V	M.C.	1
C09	0600108	0.1μF				1
C10	0600108	0.1μF				1
C11	0519103	0.47μF		50V	E.C.	2
R01	0107473	47kΩ				1
R02	0107473	47kΩ				1
R03	0107332	3.3kΩ				1
R04	0107332	3.3kΩ				1
R05	0107473	47kΩ				1
R06	0107473	47kΩ	± 5 %	¼W	C.R.	1
R07	0107332	3.3kΩ				1
R08	0107332	3.3kΩ				1
R09	0107154	150kΩ				2
R10	0107479	4.7Ω				2
R11	0103100	10Ω				1
R12	0103100	10Ω	± 5 %	½W	C.R.	1
R13	0103100	10Ω				1
R14	0103100	10Ω				1
R15	0182681	680Ω	±10%	2 W	Ce.R.	2
R16	0107474	470kΩ				1
R17	0107394	390kΩ	± 5 %	¼W	C.R.	2
R18	0107102	1kΩ				2
R19	0107124	120kΩ				2
RL01	1150101	MY4-0-US-SA Relay				

5-8. F-1354B Driver Circuit Board

(Stock No. 7570760 Complete Circuit Board F-1354B)

Conductor Side





Parts List

Parts No.	Stock No.	Description				Position
TR801	0300301,3,5	2SA640 (M. K. L)			Transistor	1 B
TR802	0300301,3,5	2SA640 (M. K. L)				2 B
TR803	0300301,3,5	2SA640 (M, K, L)				1 B
TR804	0300301,3,5	2SA640 (M, K, L)				2 B
TR805	0305901,2	2SC1124 (2, 3)				1 B
TR806	0305901,2	2SC1124 (2, 3)				2 B
TR807	0305122	2SC281 (C)				1 B
TR808	0305122	2SC281 (C)				2 B
TR809	0305741~3	2SC959 (M, K, L)				1 B
TR810	0305741~3	2SC959 (M, K, L)				2 B
TR811	0300211~3	2SA606 (M, K, L)				1 B
TR812	0300211~3	2SA606 (M, K, L)				2 B
D801	0311040	1S1555			Diode	1 A
D802	0311040	1S1555				2 A
D803	0311040	1S1555				1 A
D804	0311040	1S1555				2 A
C801	0515109	1μF	50V		E.C.	1 A
C802	0515109	1μF	50V			2 A
C803	0660220	22pF	±10%	50V	C.C.	1 A
C804	0660220	22pF				2 A
C805	0515470	47μF	50V		E.C.	1 A
C806	0515470	47μF	50V			2 A
C807	0531470	47μF	10V		BP.E.C.	1 A
C808	0531470	47μF	10V			2 A
C809	0660409	4pF	±5pF	50V	C.C.	1 A
C810	0660409	4pF				2 A
C811	0515470	47μF	50V		E.C.	1 A
C812	0515470	47μF	50V			2 A
C813	0600477	0.047μF	± 5 %	50V	M.C.	1 B
C814	0600477	0.047μF				2 B
C815	0660150	15pF	±10%	50V	C.C.	1 B
C816	0660150	15pF				2 B
C817	0515101	100μF	50V		E.C.	1 A
C818	0515101	100μF	50V			2 A
C819	0510221	220μF	6.3V			1 B
C820	0510221	220μF	6.3V			2 B
C823	0515101	100μF	50V		E.C.	1 B
C824	0515101	100μF	50V			2 B
R801	0107474	470kΩ				1 B
R802	0107474	470kΩ				2 B
R803	0107183	18kΩ				1 A
R804	0107183	18kΩ				2 A
R805	0107473	47kΩ				1 A
R806	0107473	47kΩ				2 A
R807	0107183	18kΩ				1 A
R808	0107183	18kΩ				2 A
R809	0107183	18kΩ				1 A
R810	0107183	18kΩ				2 A
R811	0107121	120Ω				1 A
R812	0107121	120Ω	± 5 %	¼W	C.R.	2 A
R813	0107332	3.3kΩ				1 B
R814	0107332	3.3kΩ				2 B
R815	0107183	18kΩ				1 A
R816	0107183	18kΩ				2 A
R817	0107121	120Ω				1 A, B
R818	0107121	120Ω				2 A, B
R819	0107182	1.8kΩ				1 A
R820	0107182	1.8kΩ				2 A
R821	0107332	3.3kΩ				1 A
R822	0107332	3.3kΩ				2 A

Parts No.	Stock No.	Description				Position
R823	0107224	220kΩ				1 A
R824	0107224	220kΩ				2 A
R825	0107473	47kΩ				1 A
R826	0107473	47kΩ	± 5 %	¼W	C.R.	2 A
R827	0107182	1.8kΩ				1 A, B
R828	0107182	1.8kΩ				2 A, B
R829	0103100	10Ω				1 B
R830	0103100	10Ω	± 5 %	½W	C.R.	2 B
R831	0107472	4.7kΩ				1 A, B
R832	0107472	4.7kΩ				2 A, B
R833	0107332	3.3kΩ				1 B
R834	0107332	3.3kΩ				2 B
R835	0107821	820Ω				1 B
R836	0107821	820Ω				2 B
R837	0107221	220Ω				1 B
R838	0107221	220Ω				2 B
R839	0107181	180Ω				1 B
R840	0107181	180Ω				2 B
R841	0107390	39Ω				1 B
R842	0107390	39Ω	± 5 %	¼W	C.R.	2 B
R843	0107331	330Ω				1 B
R844	0107331	330Ω				2 B
R845	0107221	220Ω				1 B
R846	0107221	220Ω				2 B
R847	0107221	220Ω				1 B
R848	0107221	220Ω				2 B
R851	0107100	10Ω				1 B
R852	0107100	10Ω				2 B
R853	0107100	10Ω				1 B
R854	0107100	10Ω				2 B
VR801	1031092	5kΩ (B)			Semi-Variable Resistor	1 A
VR802	1031092	5kΩ (B)				2 A
VR803	1031052	1kΩ (B)				1 A, B
VR804	1031052	1kΩ (B)				2 A, B
	5936610	Heat Sink				

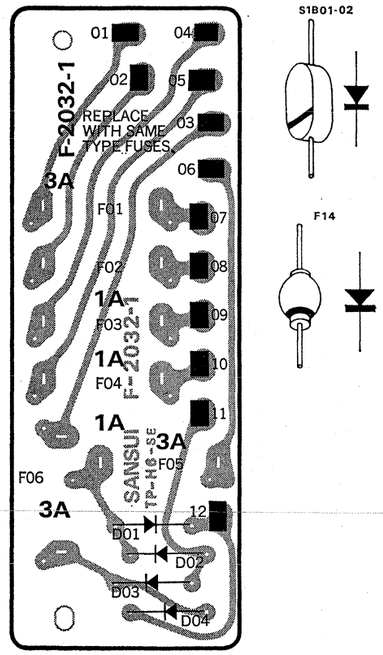
Abbreviations

C.R.	:	Carbon Resistor	BP.E.C.	:	Bi-Pola Electrolytic Capacitor
S.R.	:	Solid Resistor	C.C.	:	Ceramic Capacitor
Ce.R.	:	Cement Resistor	Mi.C.	:	Mica Capacitor
M.R.	:	Metallized Film Resistor	O.C.	:	Oil Capacitor
M.C.	:	Mylar Capacitor	P.C.	:	Polystyrene Capacitor
E.C.	:	Electrolytic Capacitor	T.C.	:	Tantalum Capacitor

5-9. F-2032 Fuse Circuit Board

(Stock No. 7591770 Complete Circuit Board F-2032)

Conductor Side



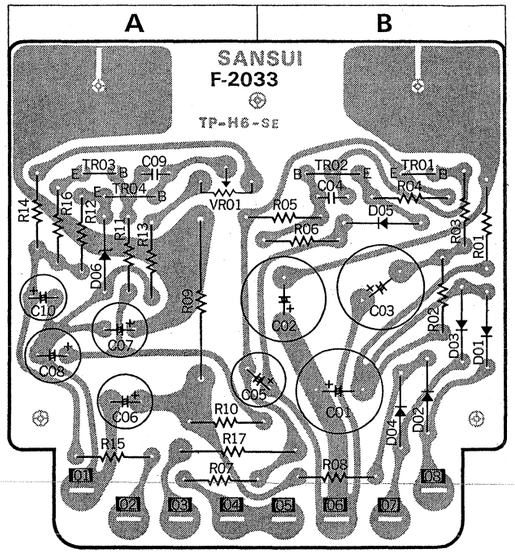
Parts List

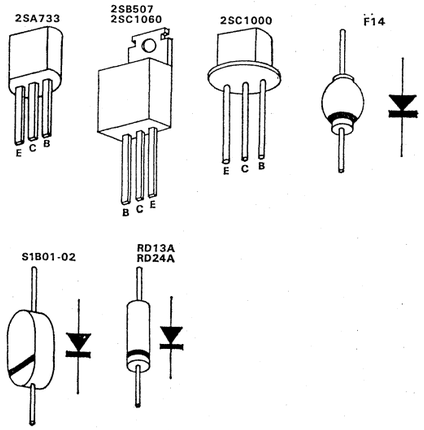
Parts No.	Stock No.	Description
D01	0310940	F14A } Diode
D02	0310940	F14A
D03	0310940	F14A
D04	0310940	F14A
F01	0432870	MF52NB-3A } Wired-in Fuse
F02	0432830	MF52NB-1A
F03	0432830	MF52NB-1A
F04	0432830	MF52NB-1A
F05	0432830	MF52NB-1A
	2250051	2212-2 Fasten Tub

5-10. F-2033 Power Supply Circuit Board

(Stock No. 7500850 Complete Circuit Board F-2033)

Conductor Side





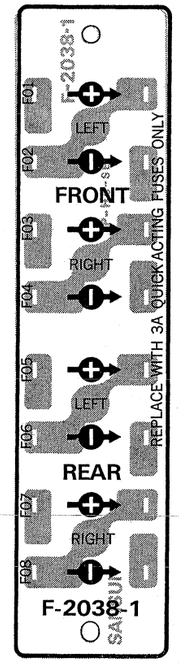
Parts List

Parts No.	Stock No.	Description			Position
TR01	0303231~3	2SB507 (D, E, F) } Transistor			B
TR02	0300510~2	2SA733 (P, Q, R)			B
TR03	0305711, 2	2SC1060 (B, C)			A
TR04	0305880, 1	2SC1000 (GR, BL)			A
D01	0311200 or 0311150	F14C or S1B01-02 } Diode			B
D02	0311200 or 0311150	F14C or S1B01-02			B
D03	0311020 or 0311150	F14C or S1B01-02			B
D04	0311200 or 0311150	F14C or S1B01-02			B
D05	0315410	RD24A (M) } Zener Diode			B
D06	0315280	RD13A (K)			A
C01	0519903	100μF	80V } E.C.		B
C02	0519903	100μF	80V		B
C03	0519903	100μF	80V		B
C04	0660471	470pF	50V C.C.		B
C05	0515330	33μF	50V } E.C.		A, B
C06	0519902	47μF	80V		A
C07	0515470	47μF	50V		A
C08	0515330	33μF	50V		A
C09	0660471	470pF	50V C.C.		A
C10	0513330	33μF	25V E.C.		A
R01	0103330	33Ω	± 5%	½W C.R.	B
R02	0107152	1.5kΩ			B
R03	0107472	4.7kΩ			B
R04	0107563	56kΩ			B
R05	0107153	15kΩ	± 5%	¼W C.R.	B
R06	0107183	18kΩ			B
R07	0107560	56Ω			A
R08	0107100	10Ω			B
R09	0183391	390kΩ	±10%	3W Ce.R.	A
R10	0107472	4.7kΩ			A, B
R11	0107562	5.6kΩ			A
R12	0107333	33kΩ			A
R13	0107562	5.6kΩ	± 5%	¼W C.R.	A
R14	0107472	4.7kΩ			A
R15	0107560	56Ω			A
R16	0107479	4.7Ω			A
VR01	1031090	5kΩ (B) Semi-Variable Resistor			A
	2250020	Fasten Tab A			

5-11. F-2038 Fuse Circuit Board

(Stock No. 7591780 Complete Circuit Board F-2038)

Conductor Side



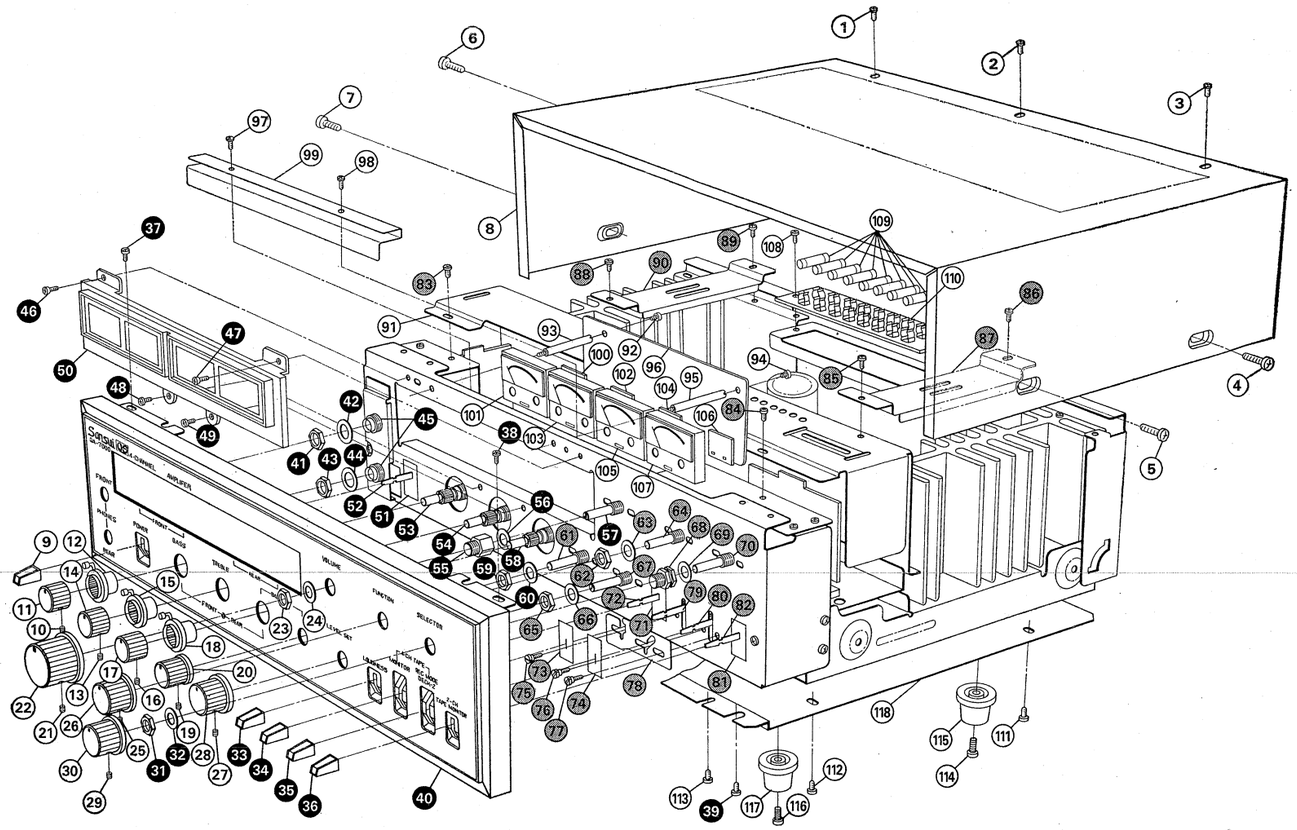
Parts List

Parts No.	Stock No.	Description
F01	0433620	MF51SH } 3A Quick Acting Fuse
F02	0433620	MF51SH
F03	0433620	MF51SH
F04	0433620	MF51SH
F05	0433620	MF51SH
F06	0433620	MF51SH
F07	0433620	MF51SH
F08	0433620	MF51SH

Abbreviations

C.R.	: Carbon Resistor	BP.E.C.	: Bi-Pola Electrolytic Capacitor
S.R.	: Solid Resistor	C.C.	: Ceramic Capacitor
Ce.R.	: Cement Resistor	Mi.C.	: Mica Capacitor
M.R.	: Metallized Film Resistor	O.C.	: Oil Capacitor
M.C.	: Mylar Capacitor	P.C.	: Polystyrene Capacitor
E.C.	: Electrolytic Capacitor	T.C.	: Tantalum Capacitor

5-12. Other Parts (Front Side)



(1) ~ (30)
(31) ~ (60)
(61) ~ (90)
(91) ~ (118)

Parts List

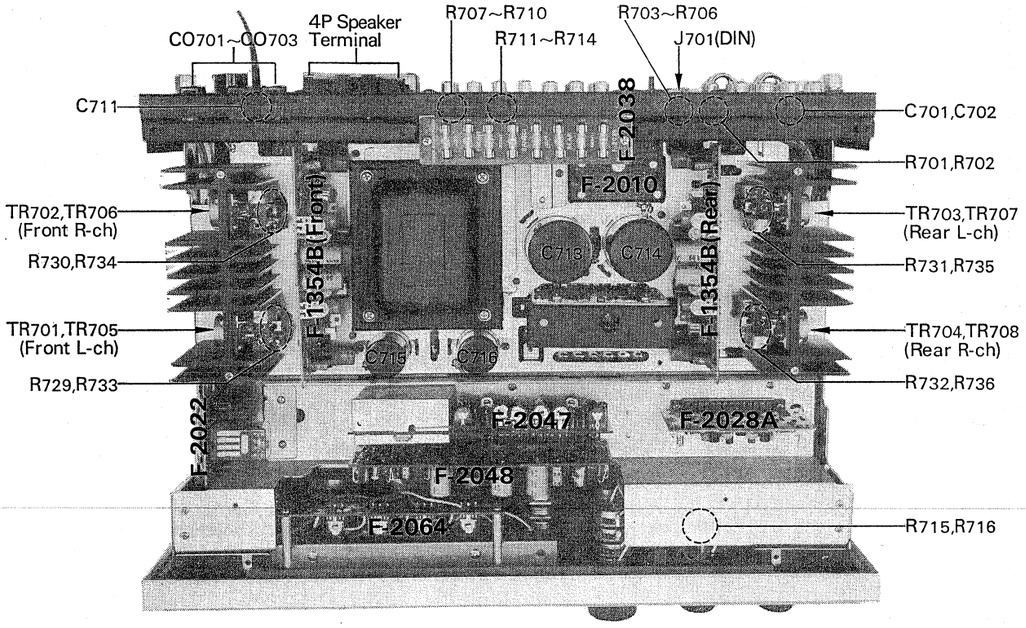
Parts No.	Stock No.	Description
1	5101143	Binding Head Screw, M3×6
2	5101143	Binding Head Screw, M3×6
3	5101143	Binding Head Screw, M3×6
4	5101161	Binding Head Screw, M4×6
5	5101161	Binding Head Screw, M4×6
6	5101161	Binding Head Screw, M4×6
7	5101161	Binding Head Screw, M4×6
8	5726673	Metal Bonnet
9	5326342	Button D, power
10		Hex. Socket Setscrew, M4×0,7×6
11	5317700	K-5 Type Knob, bass
12	5317711	L-5 Type Knob, bass
13		Hex. Socket Setscrew, M4×0.7×6
14	5317700	K-5 Type Knob, treble
15	5317711	L-5 Type Knob, treble
16		Hex. Socket Setscrew, M4×0.7×6
17	5317700	K-5 Type Knob, balance
18	5317711	L-5 Type Knob, balance

Parts No.	Stock No.	Description
19		Hex. Socket Setscrew, M4×0.7×6
20	5317402	Z-4 Type Knob, balance
21		Hex. Socket Setscrew, M4×0.7×6
22	5317412	A-5 Type Knob, volume
23	5110781	Hex. Nut M9, volume
24	5120184	Plane Washer 9ϕ, volume
25		Hex. Socket Setscrew, M4×0.7×6
26	5317422	B-5 Type Knob, function
27		Hex. Socket Setscrew, M4×0.7×6
28	5317422	B-5 Type Knob, level set
29		Hex, Socket Setscrew, M4×0.7×6
30	5317422	B-5 Type Knob, selector
31	5110781	Hex. Nut M9, selector
32	5120184	Plane Washer 9ϕ, selector
33	5326342	Button D, loudness
34	5326342	Button D, 4-ch tape mon.
35	5326342	Button D, 4-ch tape rec.
36	5326342	Button D, 2-ch tape mon.

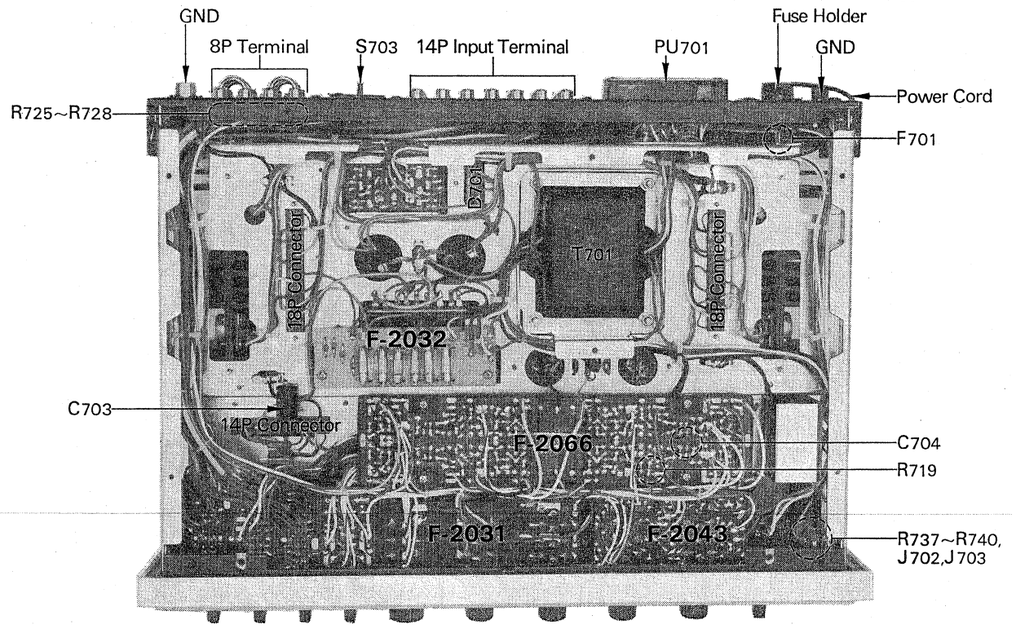
Parts No.	Stock No.	Description
37	5101143	Binding Head Screw, M3×6
38	5101143	Binding Head Screw, M3×6
39	5101143	Binding Head Screw, M3×6
40	7006881	Front Panel
41		Hex. Nut M12, headphone
42		Plane Washer 12ϕ, headphone
43		Hex. Nut M12, headphone
44		Plane Washer 12ϕ, headphone
45	2430230	Jack, Headphone
46	5102543	Flat Countersunk Head Screw, M3×6
47	5102543	Flat Countersunk Head Screw, M3×6
48	5101043	Binding Head Screw, M3×6
49	5101043	Binding Head Screw, M3×6
50	5249680	Meter Frame
51	5047460	Masking, power switch
52	1170330	Lever Switch, power
53	1060160, 1	100kΩ (B)×4 Bass Volume
54	1060160, 1	100kΩ (B)×4 Treble Volume

Parts No.	Stock No.	Description
55	5176251	Spacer Nut (C)
56	5120183	Plane Washer 8ϕ, volume
57	1060170, 1	50kΩ (B)×4 Volume
58	1060180, 1	250kΩ (MN)×4 Balance (L-R)
59	5110780	Hex. Nut M8, balance
60	5120183	Plane Washer 8ϕ, balance
61	1060190, 1	250kΩ (B)×4 Balance (F-R)
62	5110781	Hex. Nut M9, function
63	5120184	Plane Washer 9ϕ, function
64	1105170	Rotary Switch Y-5-19-7, function
65	5110780	Hex. Nut M8, level set volume
66	5120183	Plane Washer 8ϕ, level set volume
67	1060150, 1	250kΩ (B)×4 Level Set Volume
68	5176261	Spacer Nut (D)
69	5120184	Plane Washer 9ϕ, selector
70	1103500, 1	Rotary Switch Y-3-8-5, selector
71	5047460	Masking, loudness switch
72	1170270	Lever Switch, loudness
73	5047470	Masking, 4-ch tape mon.
74	5047470	Masking, 4-ch rec.
75	5166512	Screw, lock plate
76	5166512	Screw, lock plate
77	5166512	Screw, lock plate
78	5249673	Lock Plate
79	1170290	Lever Switch, 4-ch tape mon.
80	1170290	Lever Switch, 4-ch tape rec.
81	5047460	Masking, 2-ch tape mon.
82	1170300	Lever Switch, 2-ch tape mon.
83	5109222	Binding Head Tapping Screw, M3×8
84	5109222	Binding Head Tapping Screw, M3×8
85	5109222	Binding Head Tapping Screw, M3×8
86	5109222	Binding Head Tapping Screw, M3×8
87	5269150	Holder, P.C.B.
88	5109222	Binding Head Tapping Screw, M3×8
89	5109222	Binding Head Tapping Screw, M3×8
90	5269150	Holder, P.C.B.
91	5037134	Front Shield Cover
92	5101043	Binding Head Screw, M3×6
93	5236520	Prop 6ϕ×45
94	5101043	Binding Head Screw, M3×6
95	5236520	Prop 6ϕ×45
96	7591480	Meter Amp. Unit F-2064
97	5101043	Binding Head Screw, M3×6
98	5101043	Binding Head Screw, M3×6
99	5268951	Meter Holder
100	7726040	Meter Lamp Unit B
101	4300630	Level Meter
102	7726040	Meter Lamp Unit B
103	4300630	Level Meter
104	7726040	Meter Lamp Unit B
105	4300630	Level Meter
106	7726040	Meter Lamp Unit B
107	4300630	Level Meter
108	5109222	Binding Head Tapping Screw, M3×8
109	0433620	3A Quick-Acting Fuse
110	7591780	Quick-Acting Fuse Unit F-2038
111	5101161	Binding Head Screw, M4×6
112	5101161	Binding Head Screw, M4×6
113	5101161	Binding Head Screw, M4×6
114	5100665	Binding Head Tapping Screw, M4×16
115	5516821	Foot
116	5100665	Binding Head Tapping Screw, M4×16
117	5516821	Foot
118	5058040	Bottom Plate

5-13. Other Parts (Top Side)



5-14. Other Parts (Bottom Side)



Top Side Parts List

Parts No.	Stock No.	Description		
TR701	0305631, 2	2SC1030 (B, C)		Transistor
TR702	0305631, 2	2SC1030 (B, C)		
TR703	0305631, 2	2SC1030 (B, C)		
TR704	0305631, 2	2SC1030 (B, C)		
TR705	0300551, 2	2SA756 (B, C)		
TR706	0300551, 2	2SA756 (B, C)		
TR707	0300551, 2	2SA756 (B, C)		
TR708	0300551, 2	2SA756 (B, C)		
C701	0657473	0.047μF	50V	C.C.
C702	0657473	0.047μF	50V	
C711	0659801	0.01μF	1.4kV	
C713	0559107	10000μF	35V	E.C.
C714	0559107	10000μF	35V	
C715	0559302	1000μF	50V	
C716	0559302	1000μF	50V	
R701	0107334	330kΩ	± 5 % ½W C.R.	
R702	0107334	330kΩ		
R703	0107104	100kΩ		
R704	0107104	100kΩ		
R705	0107184	180kΩ		
R706	0107184	180kΩ		

Parts No.	Stock No.	Description	
R707	0107334	330kΩ	± 5 % ½W C.R.
R708	0107334	330kΩ	
R709	0107334	330kΩ	
R710	0107334	330kΩ	
R711	0107334	330kΩ	
R712	0107334	330kΩ	
R713	0107334	330kΩ	
R714	0107334	330kΩ	
R715	0107474	470kΩ	
R716	0107474	470kΩ	
R729	0153478	0.47Ω	±10% 3 W Ce.R.
R730	0153478	0.47Ω	
R731	0153478	0.47Ω	
R732	0153478	0.47Ω	
R733	0153478	0.47Ω	
R734	0153478	0.47Ω	
R735	0153478	0.47Ω	
R736	0153478	0.47Ω	
J701	2430040	DIN Connector	
CO701~3	2405004	AC Outlet	
	2290100	4P Speaker Terminal	

Bottom Side Parts List

Parts No.	Stock No.	Description		
D701	0310660	5B2 Diode		
C703	0505101	100μF	50V	E.C.
C704	0503221	220μF	25V	
R719	0107180	18Ω	± 5 % ¼W C.R.	
R725	0107822	8.2kΩ		
R726	0107822	8.2kΩ		
R727	0107822	8.2kΩ		
R728	0107822	8.2kΩ		
R737	0171271	270Ω	±10% 1W M.R.	
R738	0171271	270Ω		
R739	0171271	270Ω		
R740	0171271	270Ω		
R741	0107224	220kΩ	± 5 % ¼W C.R.	
R742	0107224	220kΩ		
T701	4001341	Power Transfomer		
PU701	2410080	Voltage Selector, socket		
	2410090	Voltage Selector, plug		
	2300060	Power Fuse Holder		
F701	0431270	4A Power Fuse (100~117V)		
	0431240	2A Power Fuse (220~240V)		

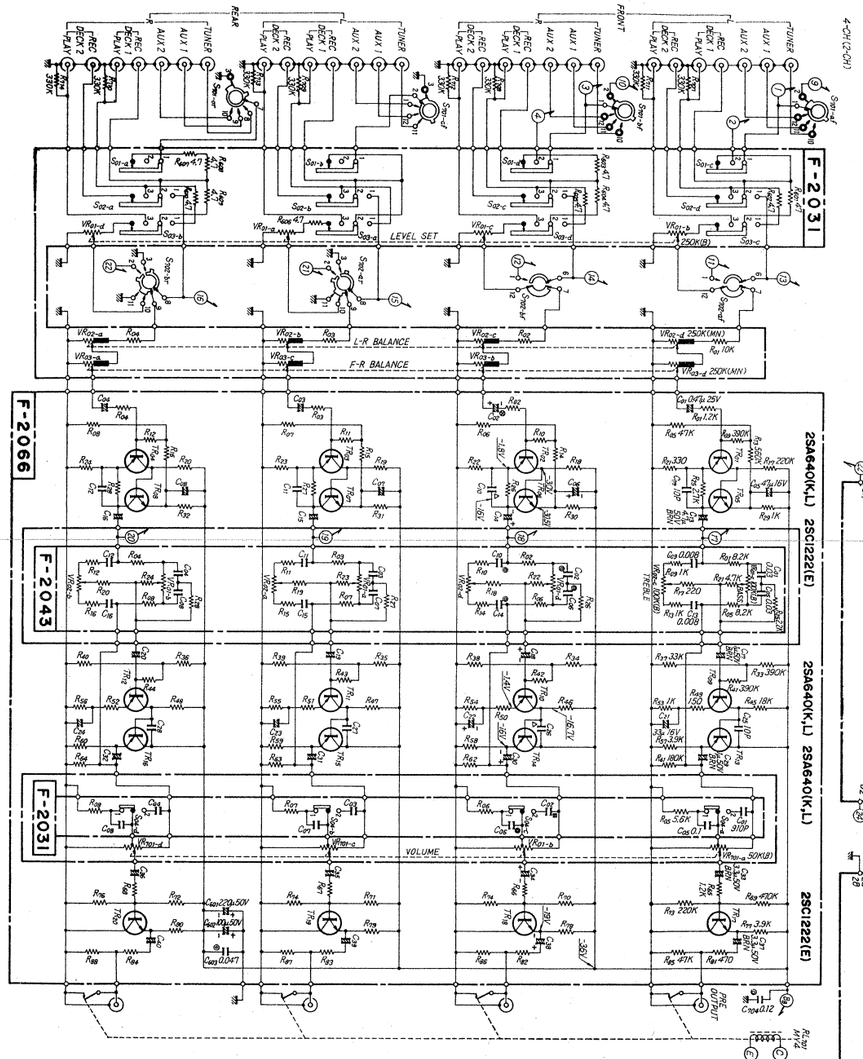
Parts No.	Stock No.	Description
J702, 3	2430230	Headphone Jack
	2420020	18P Connector
	2420040	14P Connector
	2200370	14P Input Terminal
	2200340	8P Output Terminal
	2230050	Ground Terminal
	3800020	KP-2 Power Cord

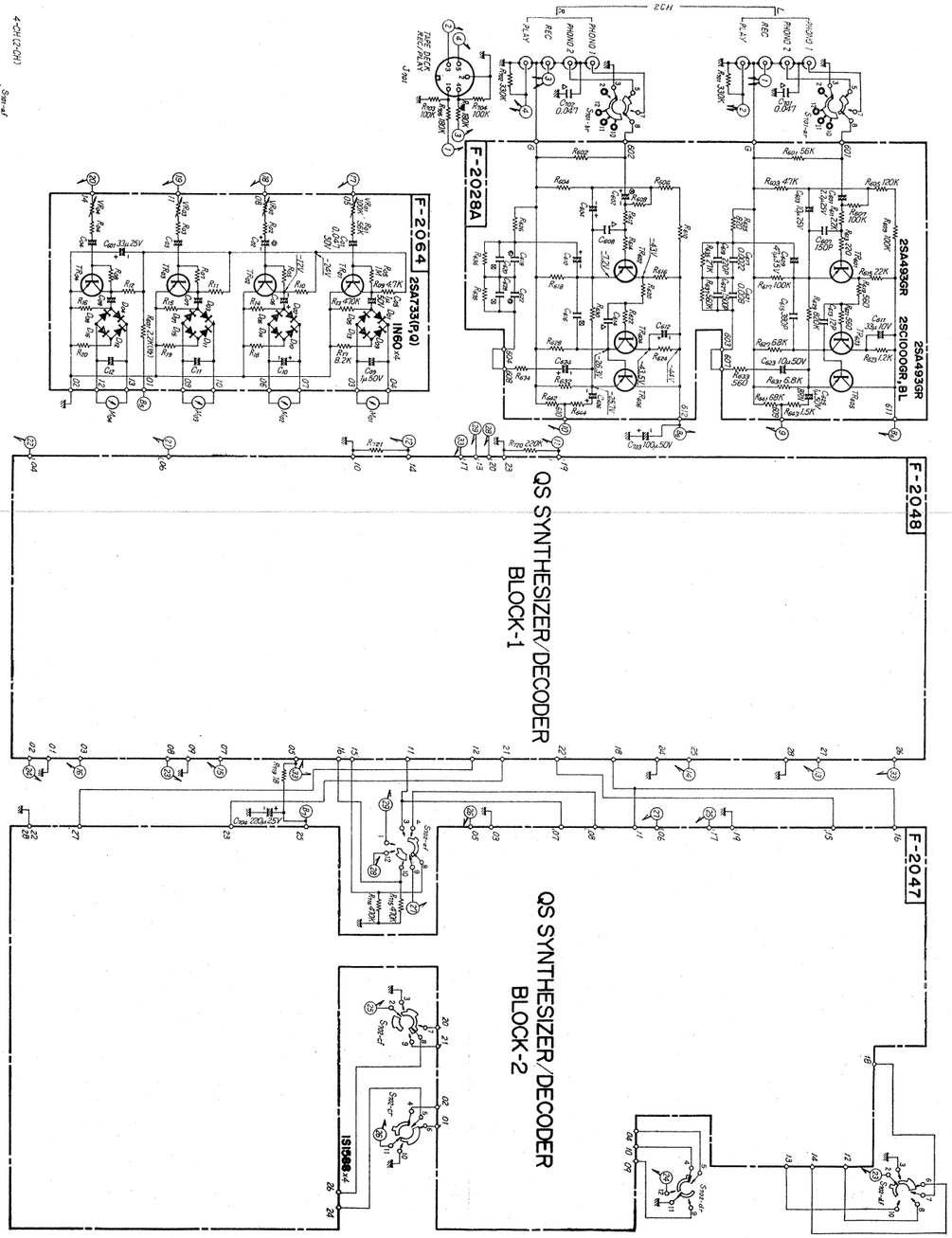
Abbreviations

C.R.	:	Carbon Resistor	BP.E.C.	:	Bi-Pola Electrolytic Capacitor
S.R.	:	Solid Resistor	C.C.	:	Ceramic Capacitor
Ce.R.	:	Cement Resistor	Mi.C.	:	Mica Capacitor
M.R.	:	Metallized Film Resistor	O.C.	:	Oil Capacitor
M.C.	:	Mylar Capacitor	P.C.	:	Polystyrene Capacitor
E.C.	:	Electrolytic Capacitor	T.C.	:	Tantalum Capacitor

6. SCHEMATIC DIAGRAM OF AUDIO SECTION-1

Design and specifications subject to change without notice fori mprovements.



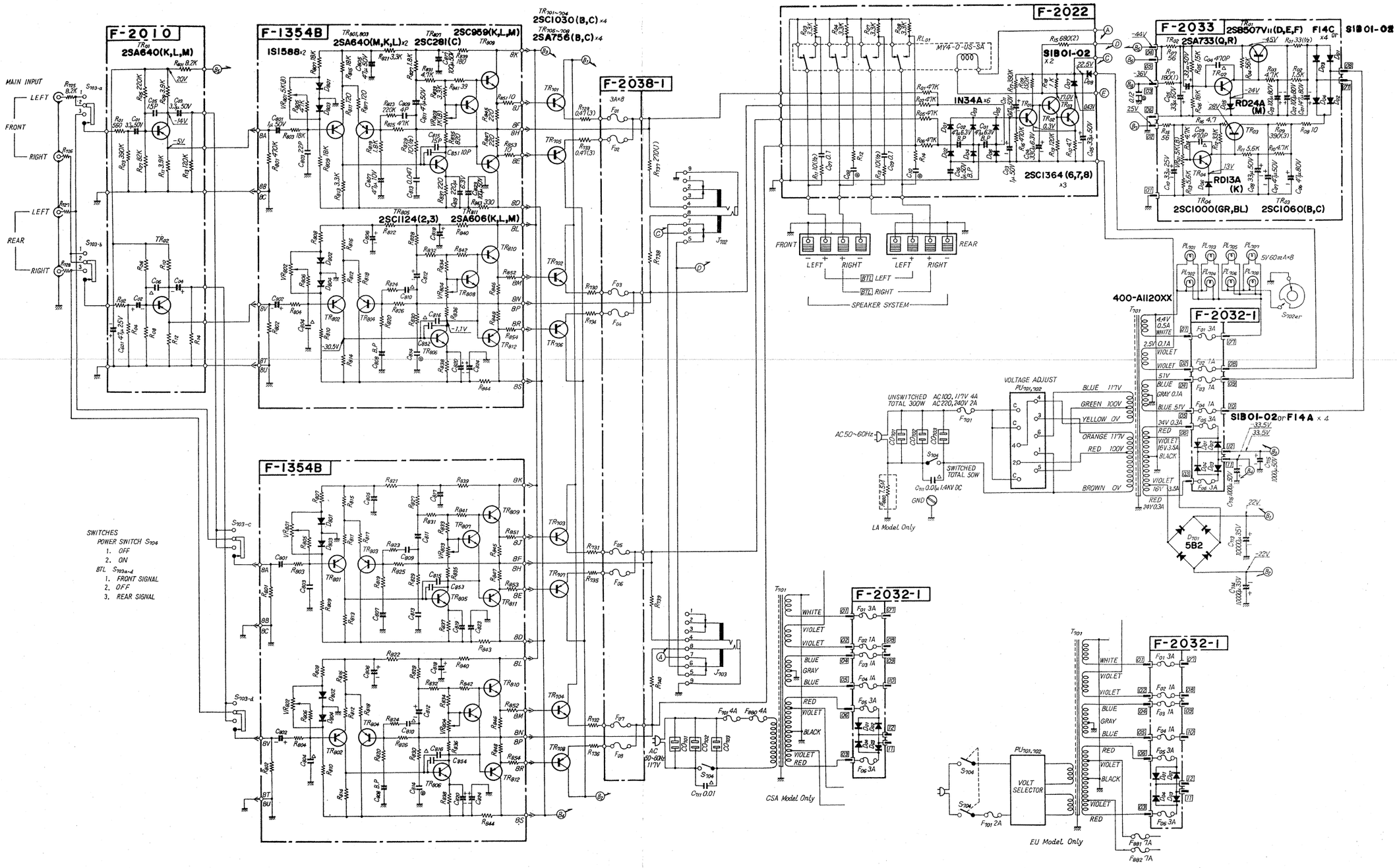


NOTIC
CAPACITOR :
● = Ceramic
⊕ = Mylar
■ = Styrol
⊗ = Tantalum Electrolytic
A.F. BI-PACK Electrolytic
RESISTOR : Resistors in Watts
Unless Otherwise Noted

SWITCHES & CONTROLS
Sw-a~f-cr SELECTOR
1. PHONO 2
2. PHONO 1
3. TUNER
4. AUX 1
5. AUX 2
Sw-a~d 2-CH TAPE MONITOR
1. SOURCE
2. PLAY BACK
Sw-a~d 4-CH TAPE MONITOR
1. RECORDED SIGNAL
2. SOURCE
3. DECK 1+2
Sw-a~d 4-CH TAPE MONITOR
1. PLAY BACK DECK 1
2. SOURCE
3. PLAY BACK DECK 2
Sw-a~d LOUDNESS
1. OUT
2. IN
Sw-a~g-cr FUNCTION
1. 2CH
2. QS SYNTHESIZER HALL
3. QS SYNTHESIZER SURROUND
4. QS SURROUND
5. QS HALL
6. PHASE MATRIX
7. DISCRETE

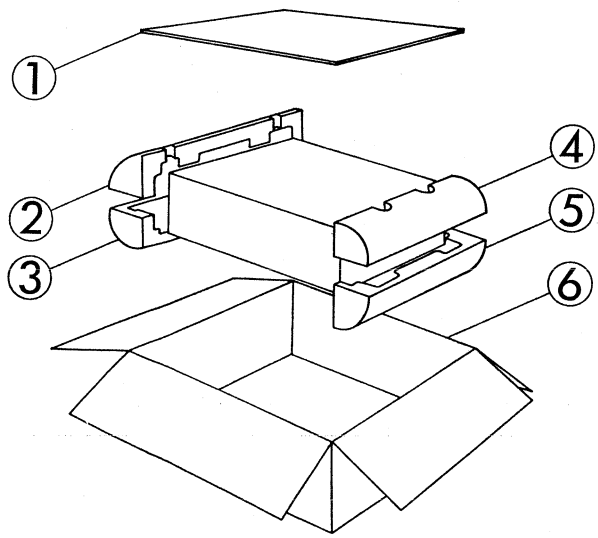
7. SCHEMATIC DIAGRAM OF AUDIO SECTION-2

* Design and specifications subject to change without notice for improvements.



8. PACKING LIST

Parts No.	Stock No.	Description
1	9017201	Inner Packing (upper)
2	9027692	Styloform Packing
3	9027692	Styloform Packing
4	9027692	Styloform Packing
5	9027692	Styloform Packing
6	9007391	Carton Case



9. ACCESSORY PARTS LIST

Stock No.	Description
9406020	Polishing Cloth
0433620	3A Quick Acting Fuse
9207070	Operating Instructions
92207070	Operating Instruction sheet

10. MAINTENANCE

10-1. Voltage Adjustment

The Voltage Selector on the rear panel enables you to operate at correct voltage in any areas. The voltage has been preadjusted at the factory, but can be easily changed as follows.

1) Remove the two screws securing the name plate on the unit's rear panel, then remove the name plate.
2) Unplug the Voltage Selector plug once, and reset it so that the arrow mark on it faces the correct voltage indication. Also change the power fuse when the power supply voltage has changed. For 100, 117 volt operation, use a 4-ampere glass-tubed fuse. For 220/240 volt operation, use a 2-ampere one.

Note: The Voltage Selector can be used to eliminate the trouble caused by the considerable voltage fluctuation. In this case, it should be set to the peak voltage.